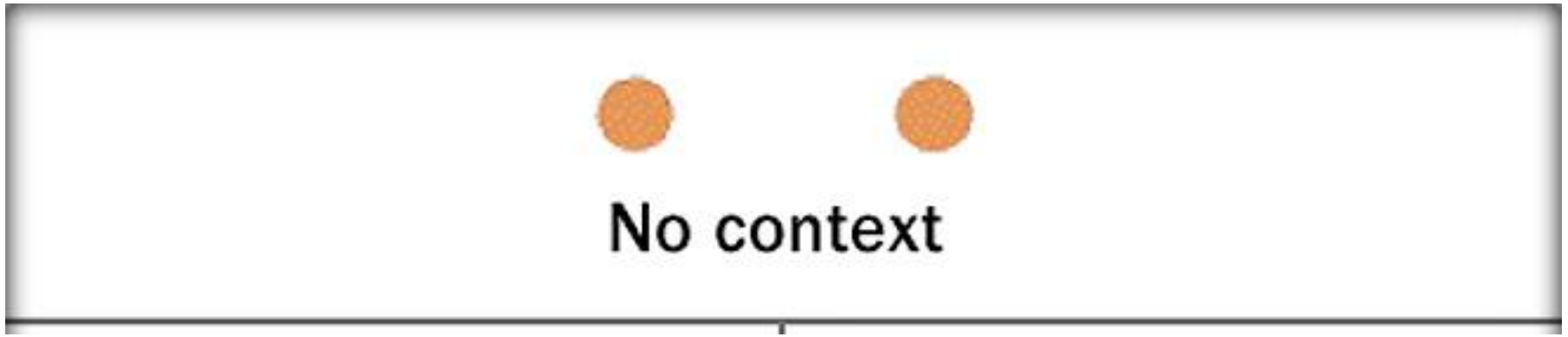
Nevenwerkingen van werk

Lode Godderis (Md, Phd)[1,2]

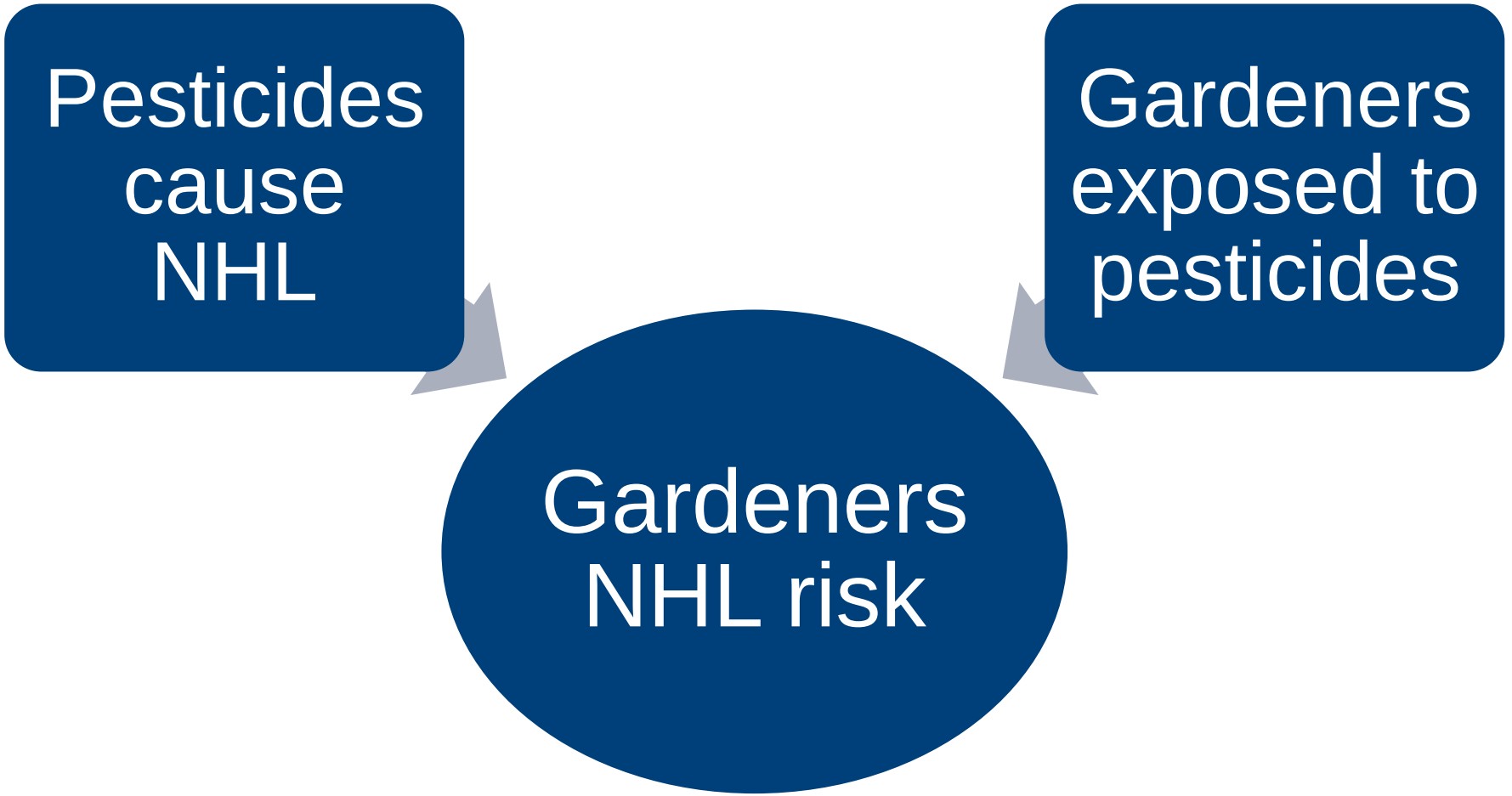
[1] KULeuven, Center Environment and Health, Leuven
[2] Idewe, External Service for Prevention and Protection at Work, Heverlee

Context



Case

Deduction


Pesticides cause NHL
Gardeners exposed to pesticides
Gardeners NHL risk

Deduction

Non-Hodgkin Lymphoma and Occupational Exposure to Agricultural Pesticide Chemical Groups and Active Ingredients: A Systematic Review and Meta-Analysis

Leah Schinasi * and Maria E. Leon

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Received: 12 February 2014; in revised form: 31 March 2014 / Accepted: 1 April 2014 / Published: 23 April 2014

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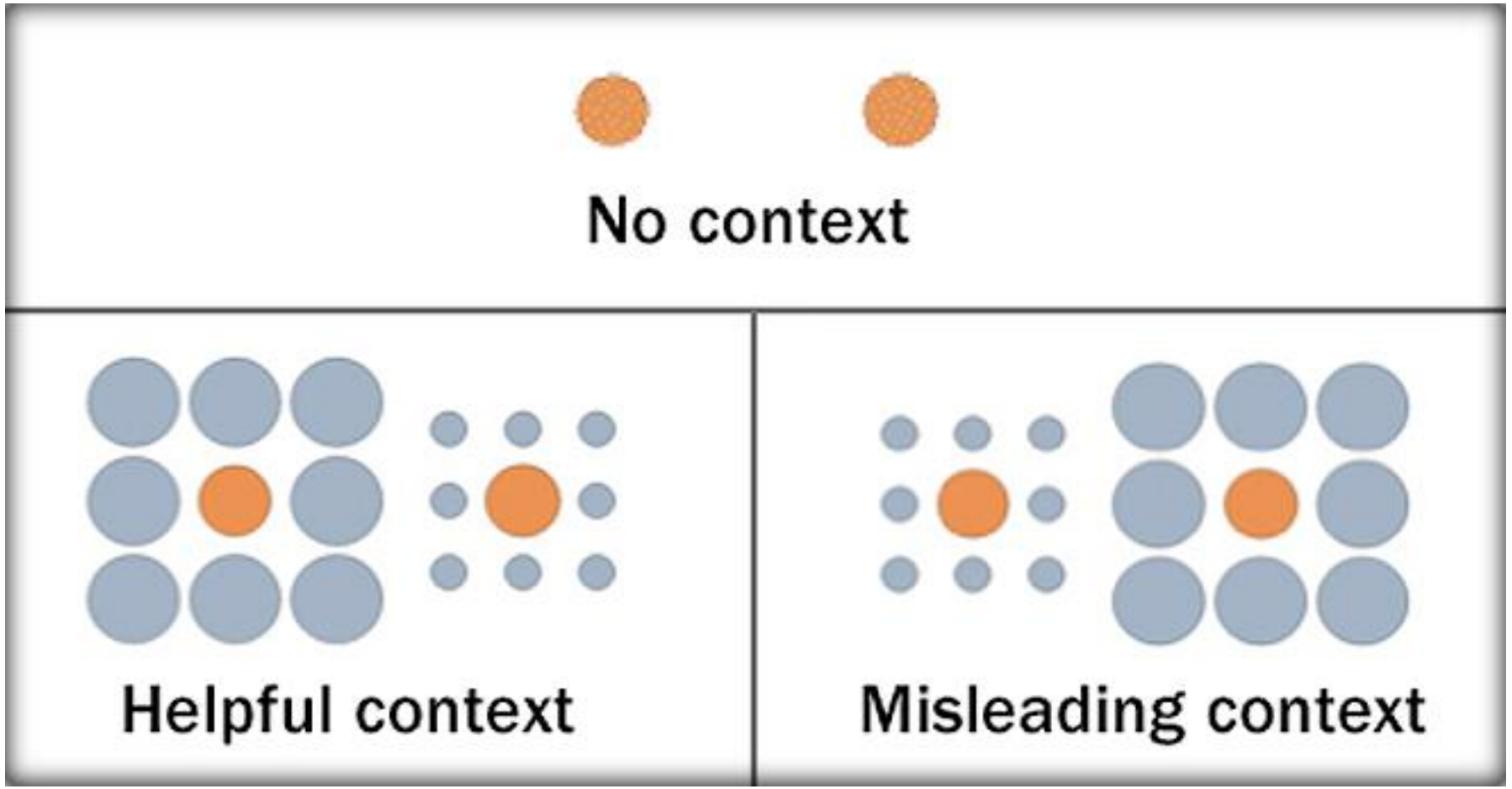
Deduction

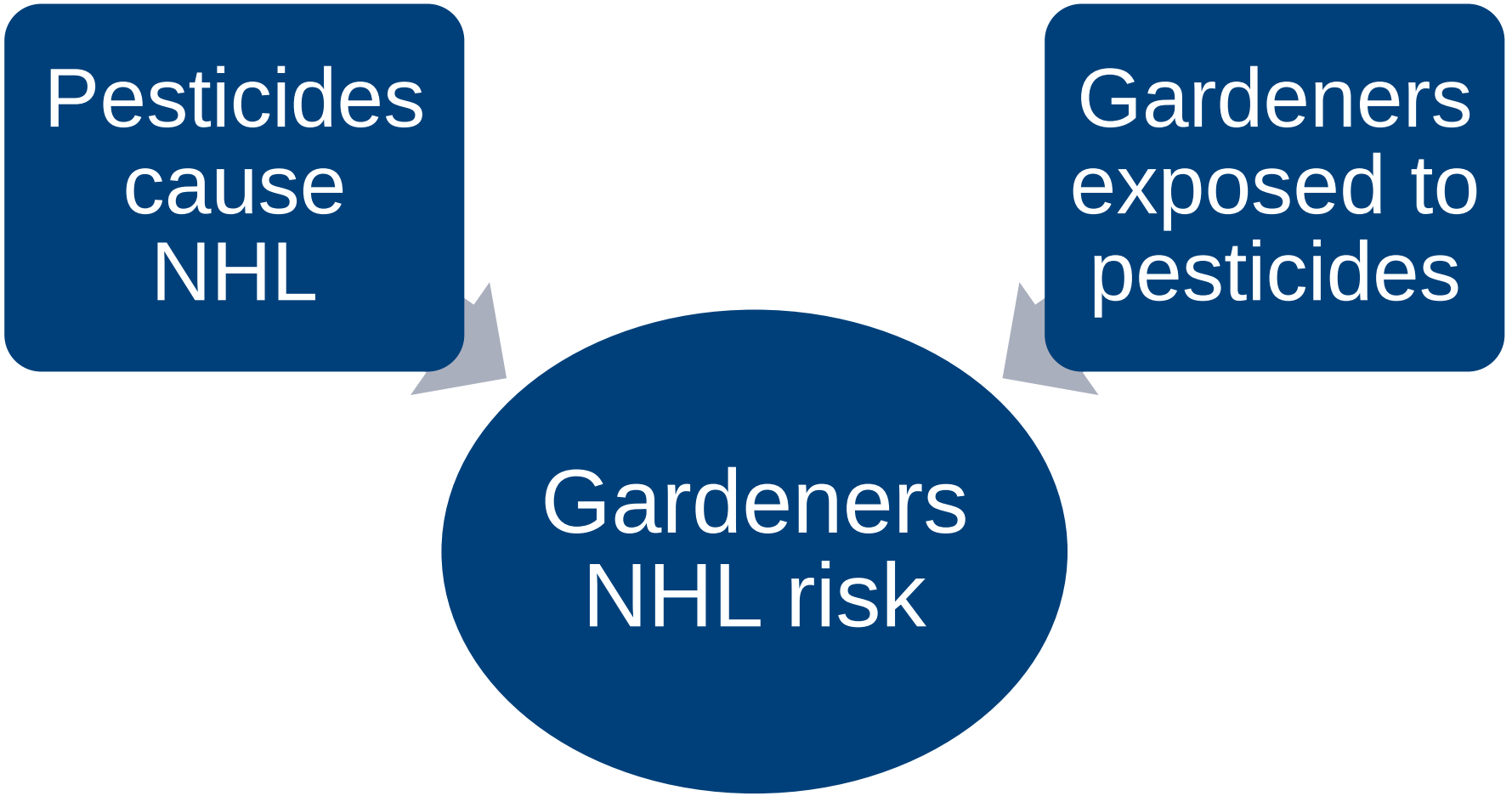
5. Conclusions

We systematically reviewed more than 25 years' worth of epidemiologic literature on the relationship between pesticide chemical groups and active ingredients with NHL. This review indicated positive associations between NHL and carbamate insecticides, OP insecticides, the phenoxy herbicide MCPA, and lindane. Few papers reported associations with subtypes of NHL; however, based on the few that did, there were strong associations between certain chemicals and B cell lymphomas. Our results show that there is consistent evidence that pesticide exposures experienced in occupational agricultural settings may be important determinants of NHL. This review also revealed clear research needs, including further investigation of some already studied pesticide active ingredients, of additional pesticides that have not yet been investigated in epidemiologic analyses, of the strength of association of pesticide exposures with subtypes of NHL, and of the relationship between NHL and pesticides in middle- and low- income areas.

Context



Deduction


Pesticides cause NHL
Gardeners exposed to pesticides
Gardeners NHL risk

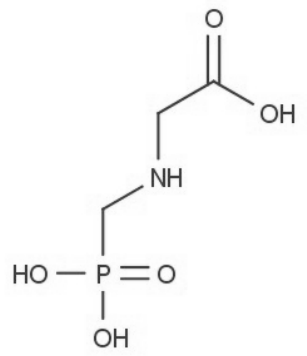
Label + Category

Substance identity

EC / List no.: 213-997-4

CAS no.: 1071-83-6

Mol. formula: C3H8NO5P



Hazard classification & labelling

Danger! According to the **harmonised classification and labelling** (CLP00) approved by the European Union, this substance is toxic to aquatic life with long lasting effects and causes serious eye damage.

ECHA

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SDS

11.1 Informatie over toxicologische effecten

Acute toxiciteit

Toxiciteit - Plaatselijke effecten

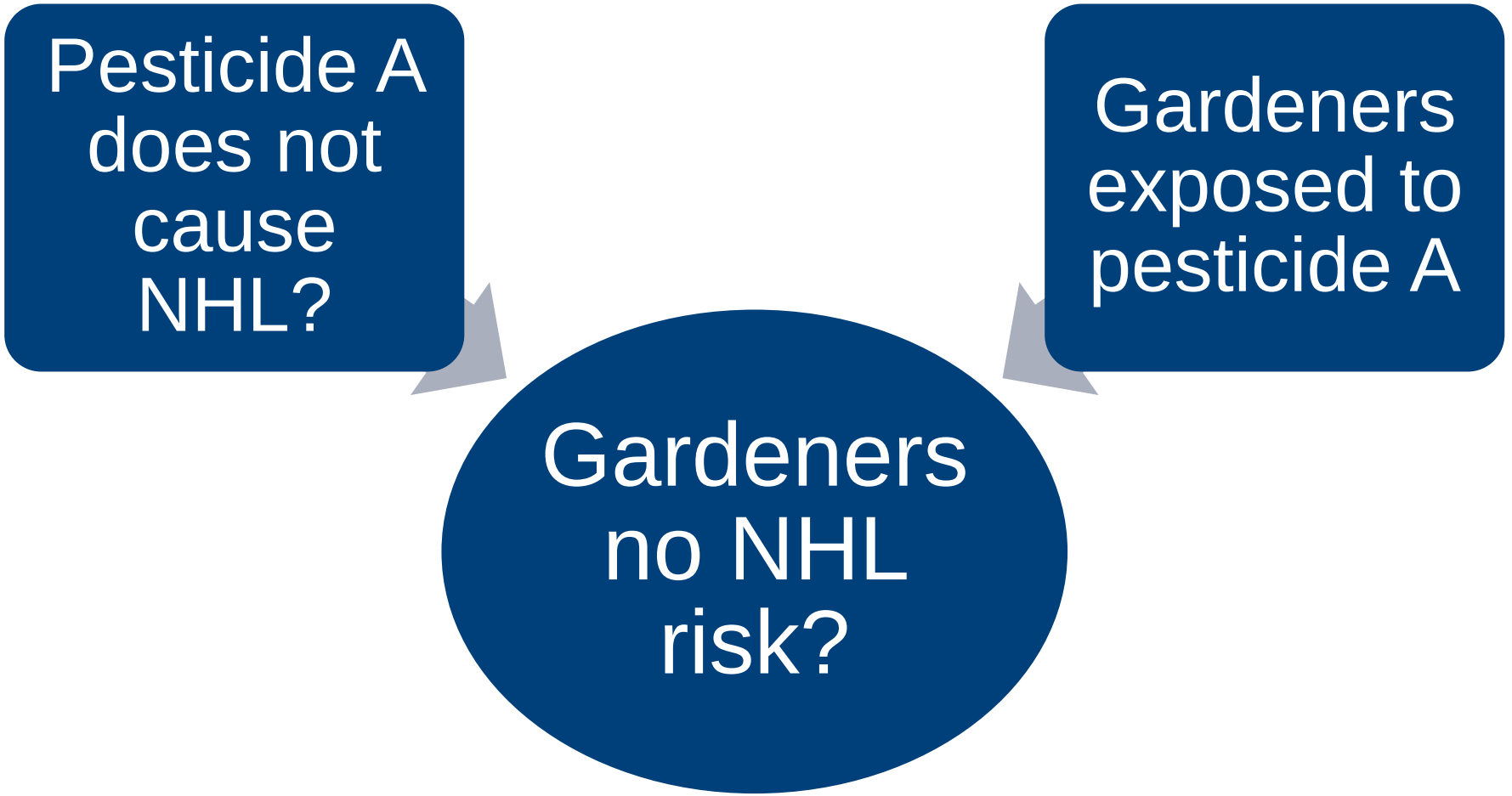
INADEMING	Over dit product zijn geen gegevens beschikbaar.
Contact met de ogen	Irriterend voor de ogen. (konijn).
Contact met de huid	Geen huidirritatie. (konijn).
INSLIKKEN	Over dit product zijn geen gegevens beschikbaar.

LD50 oraal	> 4000 mg/kg (rat)
LD50 huid	> 4000 mg/kg (rat)

Chronische toxiciteit

Huidcorrosie/-irritatie	Geen informatie beschikbaar.
Sensibilisatie	Veroorzaakte geen sensibilisering.
Kankerverwekkende effecten	Geen informatie beschikbaar
Mutagene effecten	Geen informatie beschikbaar
Effecten op de voortplanting	Geen informatie beschikbaar
STOT - bij eenmalige blootstelling	Geen informatie beschikbaar.
STOT bij herhaalde blootstelling	Geen informatie beschikbaar.

Deduction


Pesticide A does not cause NHL?
Gardeners exposed to pesticide A
Gardeners no NHL risk?

Label + Category

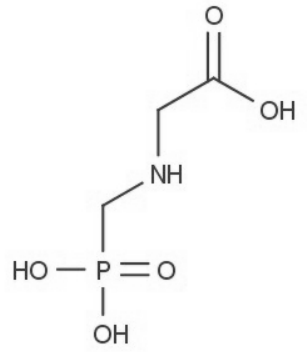
Glyphosate

Substance identity

EC / List no.: 213-997-4

CAS no.: 1071-83-6

Mol. formula: C3H8NO5P



Hazard classification & labelling

Danger! According to the **harmonised classification and labelling** (CLP00) approved by the European Union, this substance is toxic to aquatic life with long lasting effects and causes serious eye damage.

Glyphosate

JECH Online First, published on March 3, 2016 as 10.1136/jech-2015-207005

Commentary

Differences in the carcinogenic evaluation of glyphosate between the International Agency for Research on Cancer (IARC) and the European Food Safety Authority (EFSA)

Christopher J Portier,[1] Bruce K Armstrong,[2] Bruce C Baguley,[3] Xaver Baur,[4] Igor Belyaev,[5] Robert Bellé,[6] Fiorella Belpoggi,[7] Annibale Biggeri,[8] Maarten C Bosland,[9] Paolo Bruzzi,[10] Lygia Therese Budnik,[11] Merete D Bugge,[12] Kathleen Burns,[13] Gloria M Calaf,[14] David O Carpenter,[15] Hillary M Carpenter,[16] Lizbeth López-Carrillo,[17] Richard Clapp,[18] Pierluigi Cocco,[19] Dario Consonni,[20] Pietro Comba,[21] Elena Craft,[22] Mohamed Aqiel Dalvie,[23] Devra Davis,[24] Paul A Demers,[25] Anneclaire J De Roos,[26] Jamie DeWitt,[27] Francesco Forastiere,[28] Jonathan H Freedman,[29] Lin Fritschi,[30] Caroline Gaus,[31] Julia M Gohlke,[32] Marcel Goldberg,[33] Eberhard Greiser,[34] Johnni Hansen,[35] Lennart Hardell,[36] Michael Hauptmann,[37] Wei Huang,[38] James Huff,[39] Margaret O James,[40] C W Jameson,[41] Andreas Kortenkamp,[42] Annette Kopp-Schneider,[43] Hans Kromhout,[44] Marcelo L Larramendy,[45] Philip J Landrigan,[46] Lawrence H Lash,[47] Dariusz Leszczynski,[48] Charles F Lynch,[49] Corrado Magnani,[50] Daniele Mandrioli,[51] Francis L Martin,[52] Enzo Merler,[53] Paola Michelozzi,[54] Lucia Miligi,[55] Anthony B Miller,[56] Dario Mirabelli,[57] Franklin E Mirer,[58] Saloshni Naidoo,[59] Melissa J Perry,[60] Maria Grazia Petronio,[61] Roberta Pirastu,[62] Ralph J Portier,[63] Kenneth S Ramos,[64] Larry W Robertson,[65] Theresa Rodriguez,[66] Martin Röösli,[67] Matt K Ross,[68] Deodutta Roy,[69] Ivan Rusyn,[70] Paulo Saldiva,[71] Jennifer Sass,[72] Kai Savolainen,[73] Paul T J Scheepers,[74] Consolato Sergi,[75] Ellen K Silbergeld,[76] Martyn T Smith,[77] Bernard W Stewart,[78] Patrice Sutton,[79] Fabio Tateo,[80] Benedetto Terracini,[81] Heinz W Thielmann,[82] David B Thomas,[83] Harri Vainio,[84] John E Vena,[85] Paolo Vineis,[86] Elisabete Weiderpass,[87] Dennis D Weisenburger,[88] Tracey J Woodruff,[89] Takashi Yorifuji,[90] Il Je Yu,[91] Paola Zambon,[92] Hajo Zeeb,[93] Shu-Feng Zhou[94]

For numbered affiliations see end of article.

Correspondence to Dr Christopher J Portier, Environmental Health Consultant, Thun, CH-3600, Switzerland; cportier@me.com

The International Agency for Research on Cancer (IARC) Monographs Programme identifies chemicals, drugs, mixtures, occupational exposures, lifestyles and personal habits, and physical and biological agents that cause cancer in humans and has evaluated about 1000 agents since 1971. Monographs are written by ad hoc Working Groups (WGs) of international scientific experts over a period of about 12 months ending in an eight-day meeting. The WG evaluates all of the publicly available scientific information on each substance and, through a transparent and rigorous process,[1] decides on the degree to which the scientific evidence supports that substance's potential to cause or not cause cancer in humans.

For Monograph 112,[2] 17 expert scientists evaluated the carcinogenic hazard for four insecticides and the herbicide glyphosate.[3] The WG concluded that the data for glyphosate meet the criteria for classification as a *probable human carcinogen*.

The European Food Safety Authority (EFSA) is the primary agency of the European Union for risk assessments regarding food safety. In October 2015, EFSA reported[4] on their evaluation of the Renewal Assessment Report[5] (RAR) for glyphosate that was prepared by the Rapporteur Member State, the German Federal Institute for Risk Assessment (BfR). EFSA concluded that 'glyphosate is unlikely to pose a carcinogenic hazard to humans and the evidence does not support classification with regard to its carcinogenic potential'. Addendum 1 (the BfR Addendum) of the RAR[5] discusses the scientific rationale for differing from the IARC WG conclusion.

Serious flaws in the scientific evaluation in the RAR incorrectly characterise the potential for a carcinogenic hazard from exposure to glyphosate. Since the RAR is the basis for the European Food Safety Agency (EFSA) conclusion,[4] it is critical that these shortcomings are corrected.

THE HUMAN EVIDENCE

EFSA concluded 'that there is very limited evidence for an association between glyphosate-based formulations and non-Hodgkin lymphoma (NHL), overall inconclusive for a causal or clear associative relationship between glyphosate and cancer in human studies'. The BfR Addendum (p. ii) to the EFSA report explains that 'no consistent positive association was observed' and 'the most powerful study showed no effect'. The IARC WG concluded there is *limited evidence of carcinogenicity in humans* which means "A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the Working Group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence."[1]

The finding of *limited evidence* by the IARC WG was for NHL, based on high-quality case–control studies, which are particularly valuable for determining the carcinogenicity of an agent because their design facilitates exposure assessment and reduces the potential for certain biases. The Agricultural Health Study[6] (AHS) was the only cohort study available providing information on the carcinogenicity

Arch Toxicol
DOI 10.1007/s00204-017-1962-5

CrossMark

REVIEW ARTICLE

Glyphosate toxicity and carcinogenicity: a review of the scientific basis of the European Union assessment and its differences with IARC

Jose V. Tarazona[1] · Daniele Court-Marques[1] · Manuela Tiramani[1] · Hermine Reich[1] · Rudolf Pfeil[2] · Frederique Istace[1] · Federica Crivellente[1]

Received: 15 January 2017 / Accepted: 21 March 2017

Abstract Glyphosate is the most widely used herbicide worldwide. It is a broad spectrum herbicide and its agricultural uses increased considerably after the development of glyphosate-resistant genetically modified (GM) varieties. Since glyphosate was introduced in 1974, all regulatory assessments have established that glyphosate has low hazard potential to mammals, however, the International Agency for Research on Cancer (IARC) concluded in March 2015 that it is probably carcinogenic. The IARC conclusion was not confirmed by the EU assessment or the recent joint WHO/FAO evaluation, both using additional evidence. Glyphosate is not the first topic of disagreement between IARC and regulatory evaluations, but has received greater attention. This review presents the scientific basis of the glyphosate health assessment conducted within the European Union (EU) renewal process, and explains the differences in the carcinogenicity assessment with IARC. Use of different data sets, particularly on long-term toxicity/carcinogenicity in rodents, could partially explain the divergent views; but methodological differences in the evaluation of the available evidence have been identified. The EU assessment did not identify a carcinogenicity hazard, revised the toxicological profile proposing new toxicological reference values, and conducted a risk assessment for some representatives uses. Two complementary exposure assessments, human-biomonitoring and food-residues-monitoring, suggests that actual exposure levels are below these reference values and do not represent a public concern.

Keywords Glyphosate · Toxicity · Carcinogenicity · IARC · EFSA · Public health · Consumer risk

Introduction

Glyphosate is the most widely used herbicide in the world. A broad spectrum herbicide, its uses include weed control in agriculture, vegetation control in non-agricultural areas, and harvesting aid as crop desiccant. Its use in agriculture has increased considerably due to the development of glyphosate-resistant GM crop varieties; the herbicide has also been used to control illegal crops through massive aerial applications (Solomon et al. 2007). The widespread use and public debate regarding these uses have aroused societal concern and a scientific controversy on the toxicity of glyphosate (Faria 2015) beyond the scientific debate (Blaylock 2015).

Glyphosate was considered an advantageous herbicide until its use led to the evolution of glyphosate-resistant weeds (Duke and Powles 2008) and studies suggesting effects of glyphosate-based formulations in humans and wildlife were published. Interest in glyphosate has increased exponentially among scientists, and the subject accounted for 5% of the articles on pesticides included in PubMed during 2015. About 25% of the articles cover the toxicity endpoints in humans and all types of organisms, and the majority is conducted with glyphosate-based formulations, containing other ingredients. Some

Electronic supplementary material The online version of this article (doi:10.1007/s00204-017-1962-5) contains supplementary material, which is available to authorized users.

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[2] Federal Institute for Risk Assessment (BfR), Berlin, Germany

Published online: 03 April 2017

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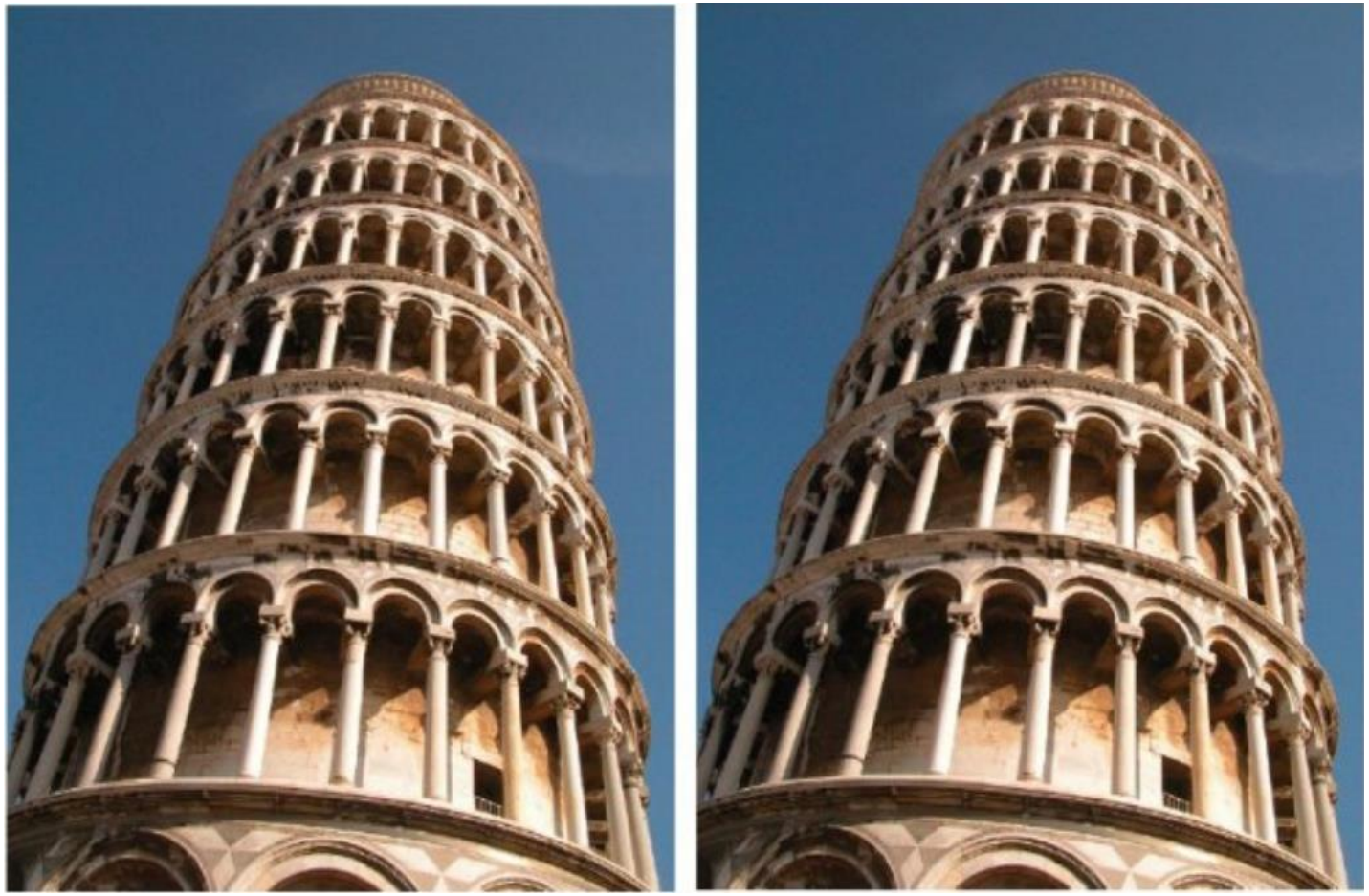
Table 3

Overall comparison of the carcinogenicity assessments of pesticides conducted by EFSA and IARC (see supplementary material for information on the pesticides classified in each category)

	Category 1A	*Category 1B*	*Category 2*	*No classification*		*Not assessed/no data*
EU	0	17	53	30		4
	Group 1	*Group 2A*	*Group 2B*	*Group 3*	*Group 4*	*Not assessed*
IARC	3	8	13	34	0	56

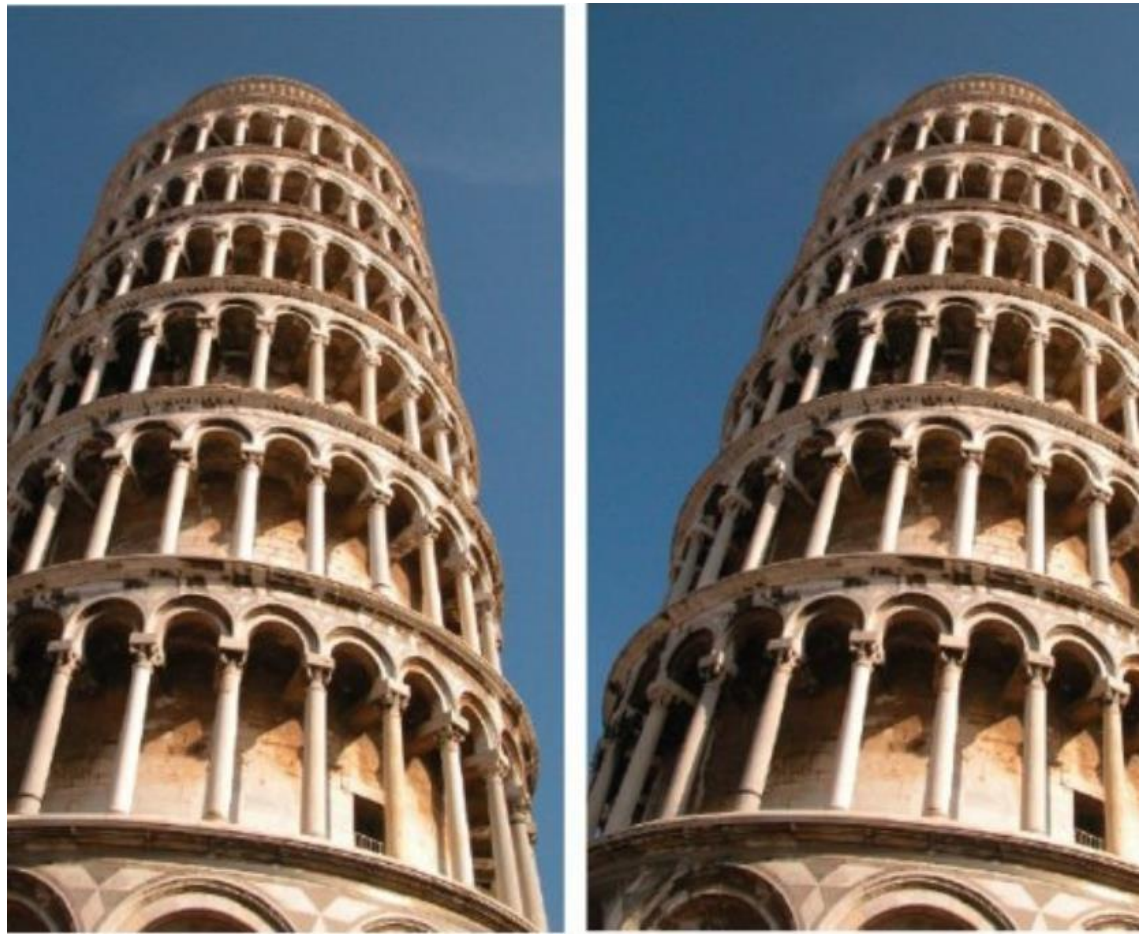
Conclusion

1

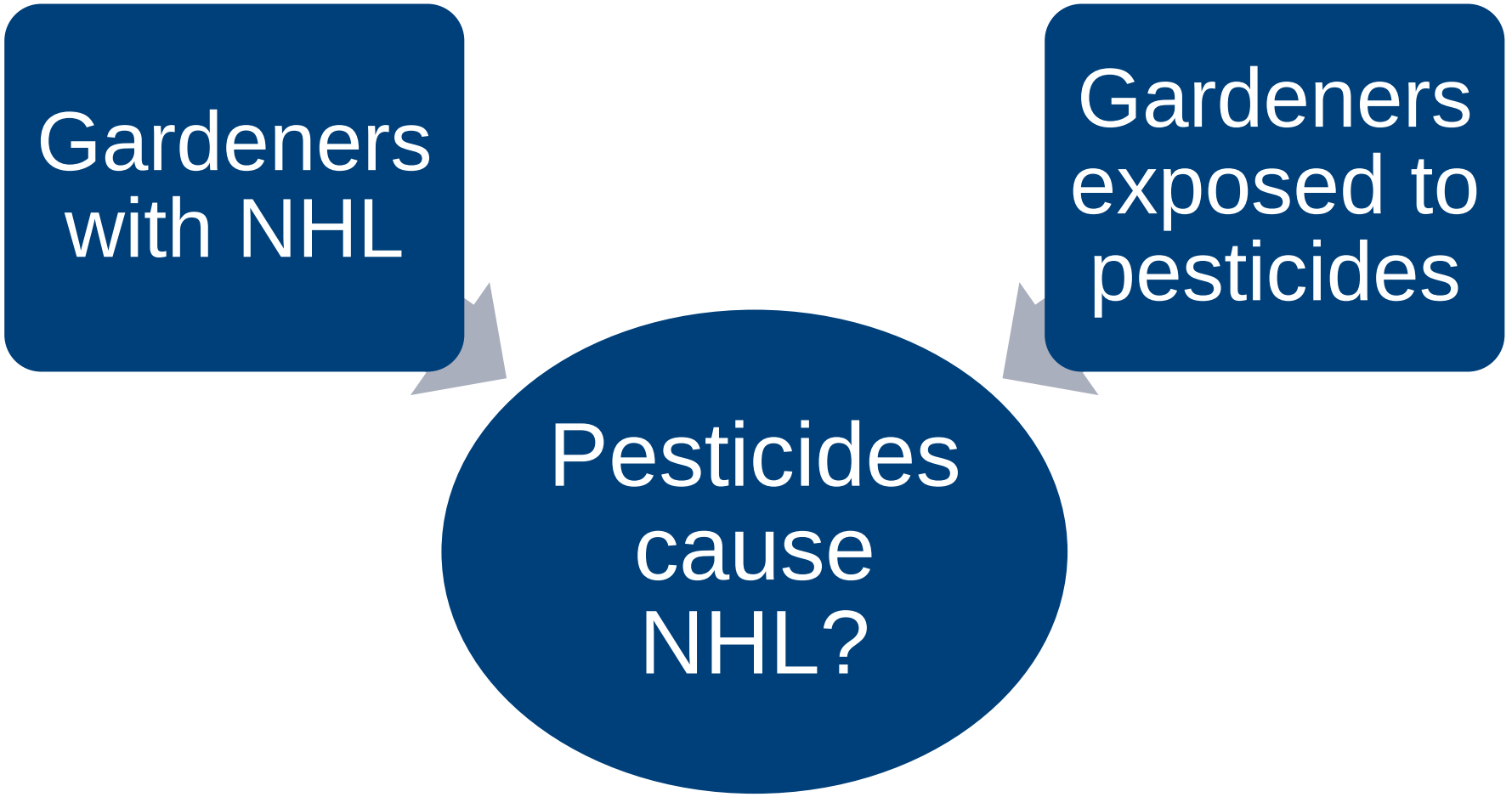


Conclusion1

- Hazard identification
  - IARC assessed 900 agents
  - 1000s agents unknown hazards
- Exposure assessment
  - 1 in 5 EU-workers exposed to carcinogens
  - Underestimate?
- Risk assessment
  - ‘Acceptable’ cancer risk: 10^{-5}
  - Uncertainty



Induction


Gardeners with NHL
Gardeners exposed to pesticides
Pesticides cause NHL?

Pharmacovigilance

Science and activities relating to the **detection, assessment, understanding** and **prevention** of **adverse effects** or any other **drug**-related problem

OSH vigilance

Science and activities relating to the **detection, assessment, understanding** and **prevention** of **adverse effects** or any other **work**-related problem

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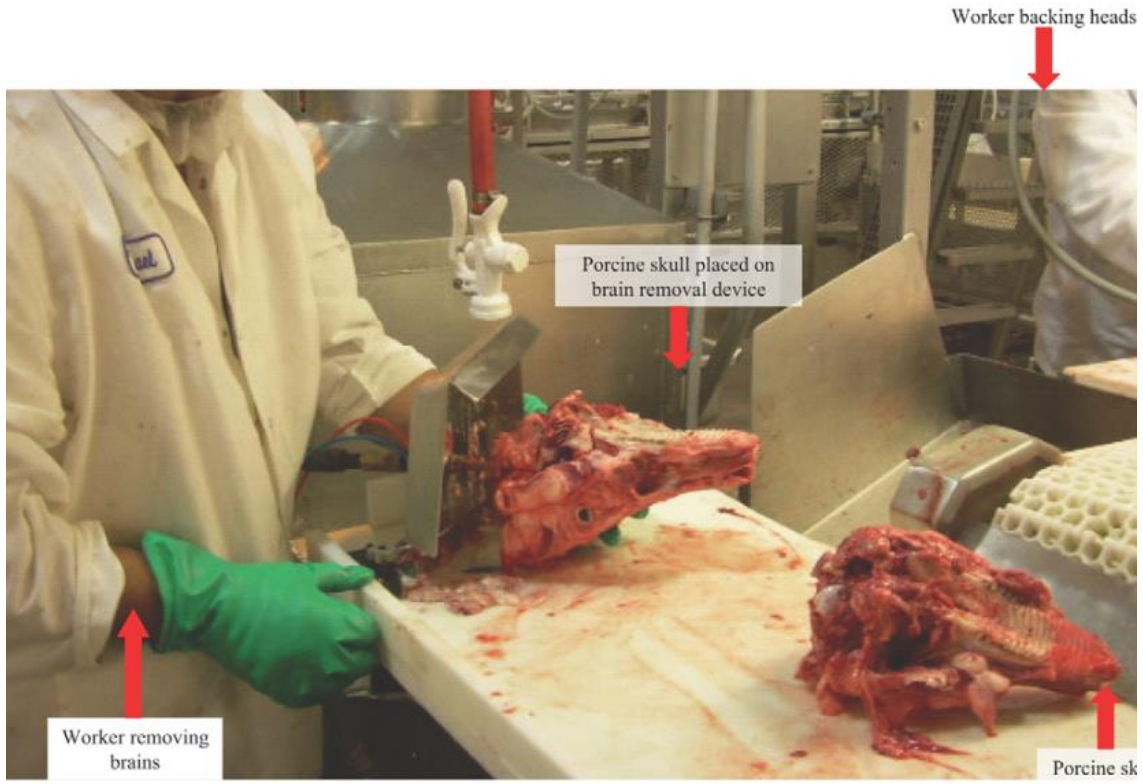
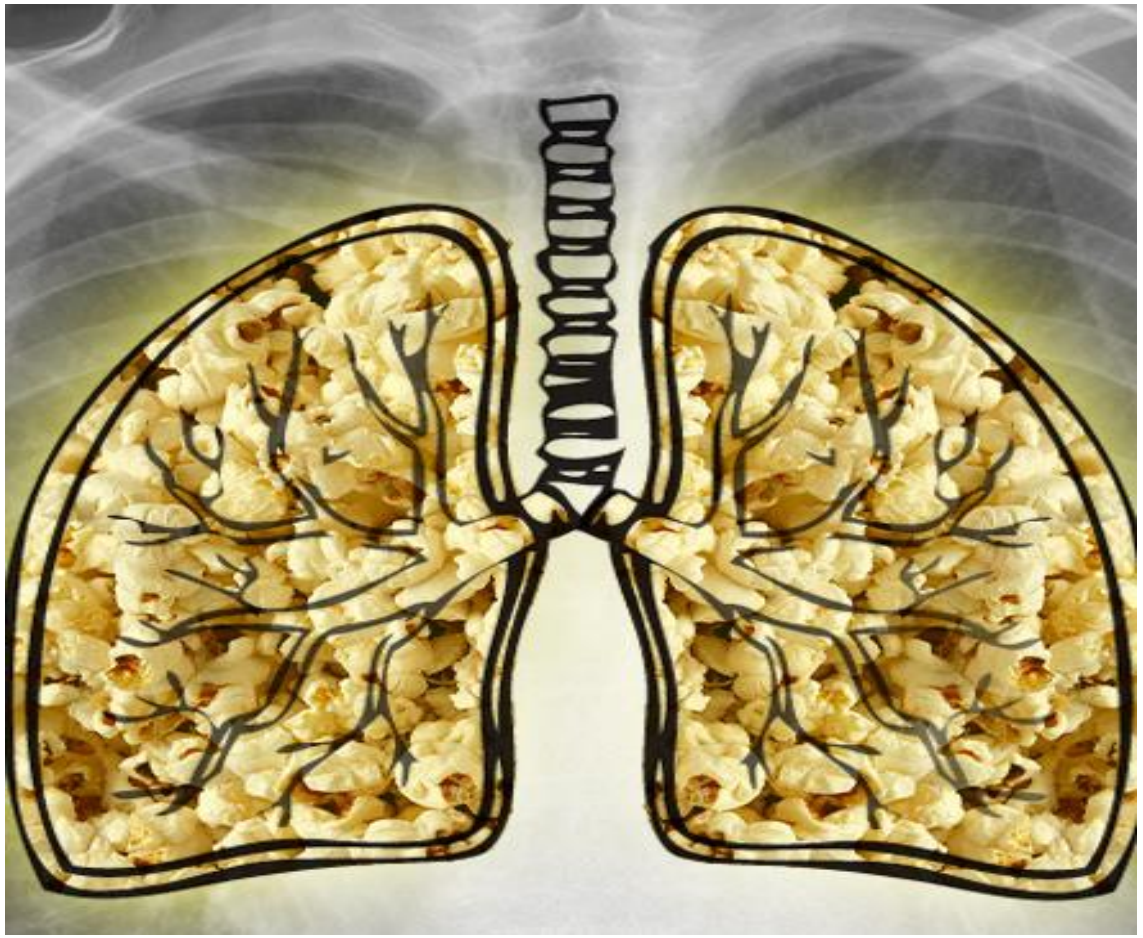
OSH vigilance



'e 4. Photograph of brain removal compressed-air device during operation.
).1371/journal.pone.0009782.g004



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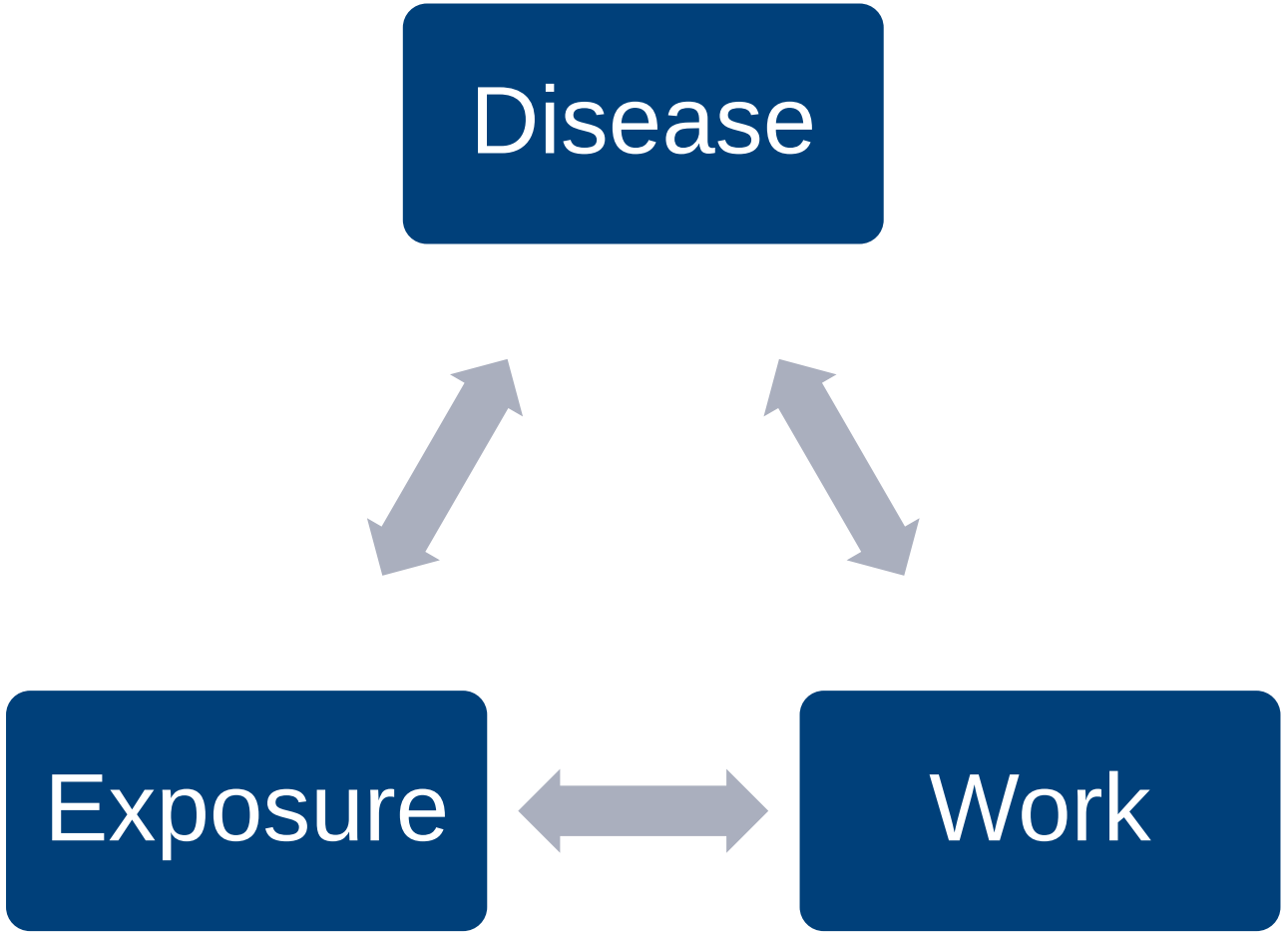
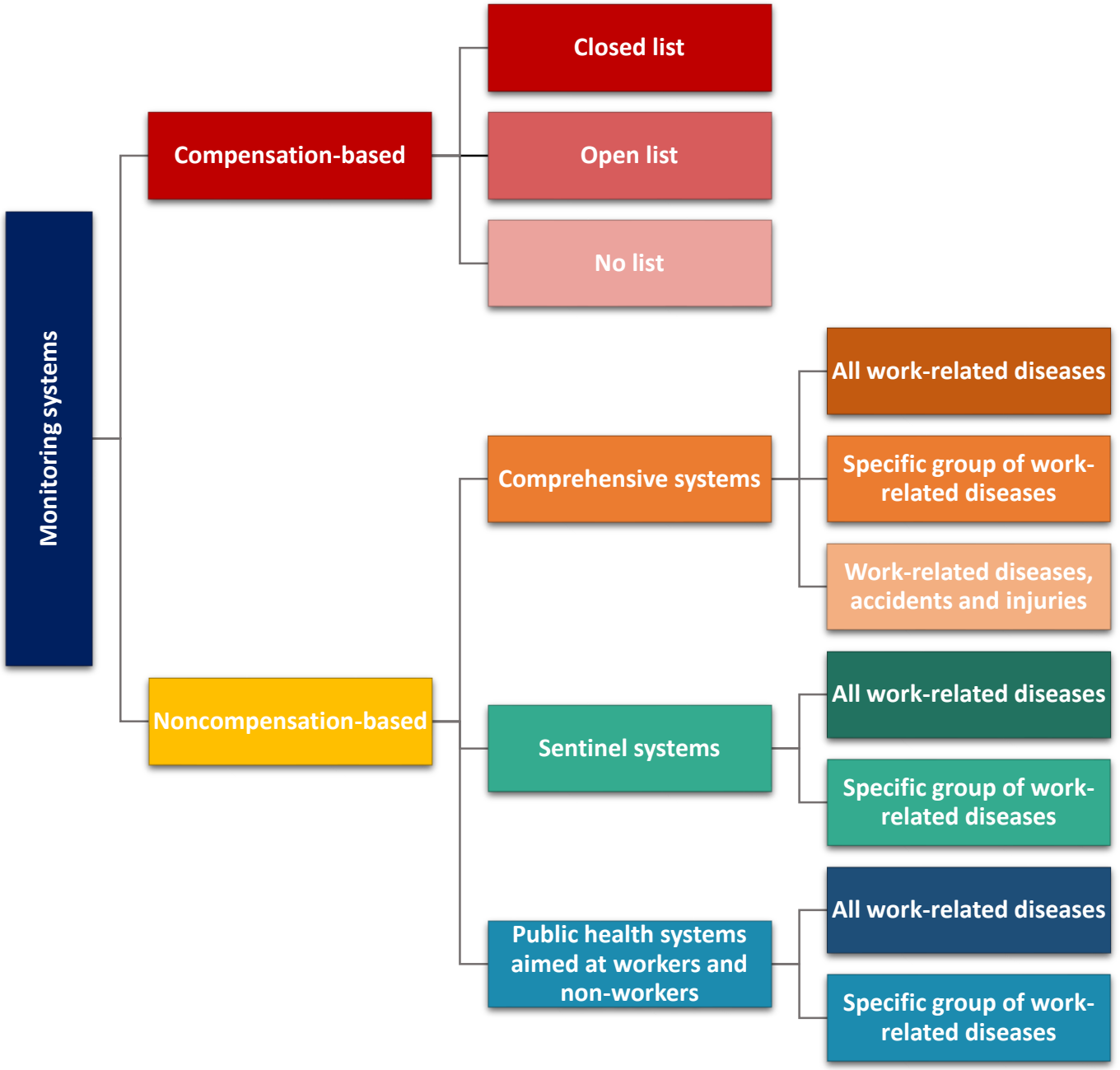
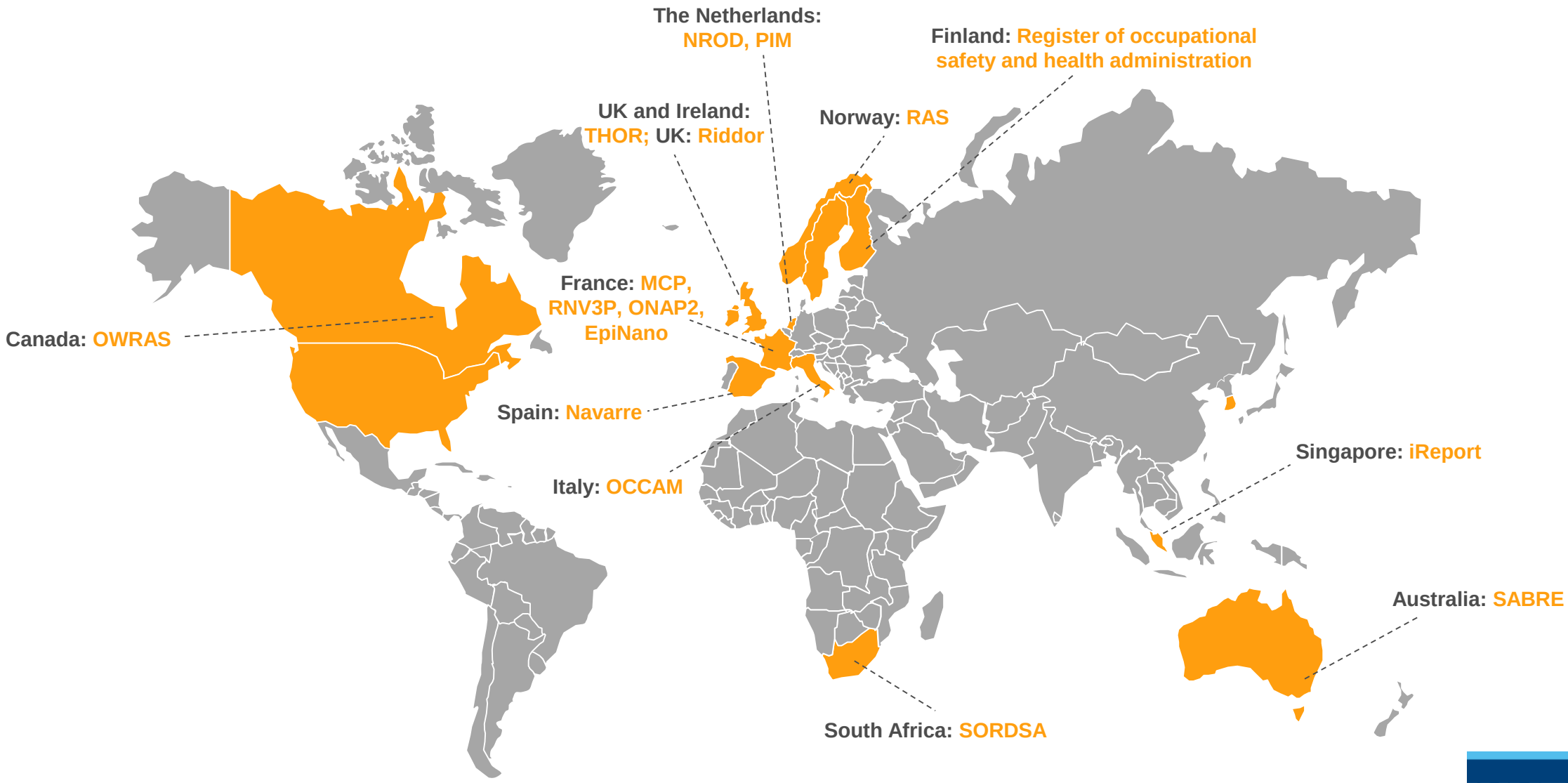

Disease
Exposure
Work

Case


Monitoring systems
Compensation-based
Closed list
Open list
No list
Noncompensation-based
Comprehensive systems
All work-related diseases
Specific group of work-related diseases
Work-related diseases, accidents and injuries
Sentinel systems
All work-related diseases
Specific group of work-related diseases
Public health systems aimed at workers and non-workers
All work-related diseases
Specific group of work-related diseases

Compensation-based systems

Comprehensive systems



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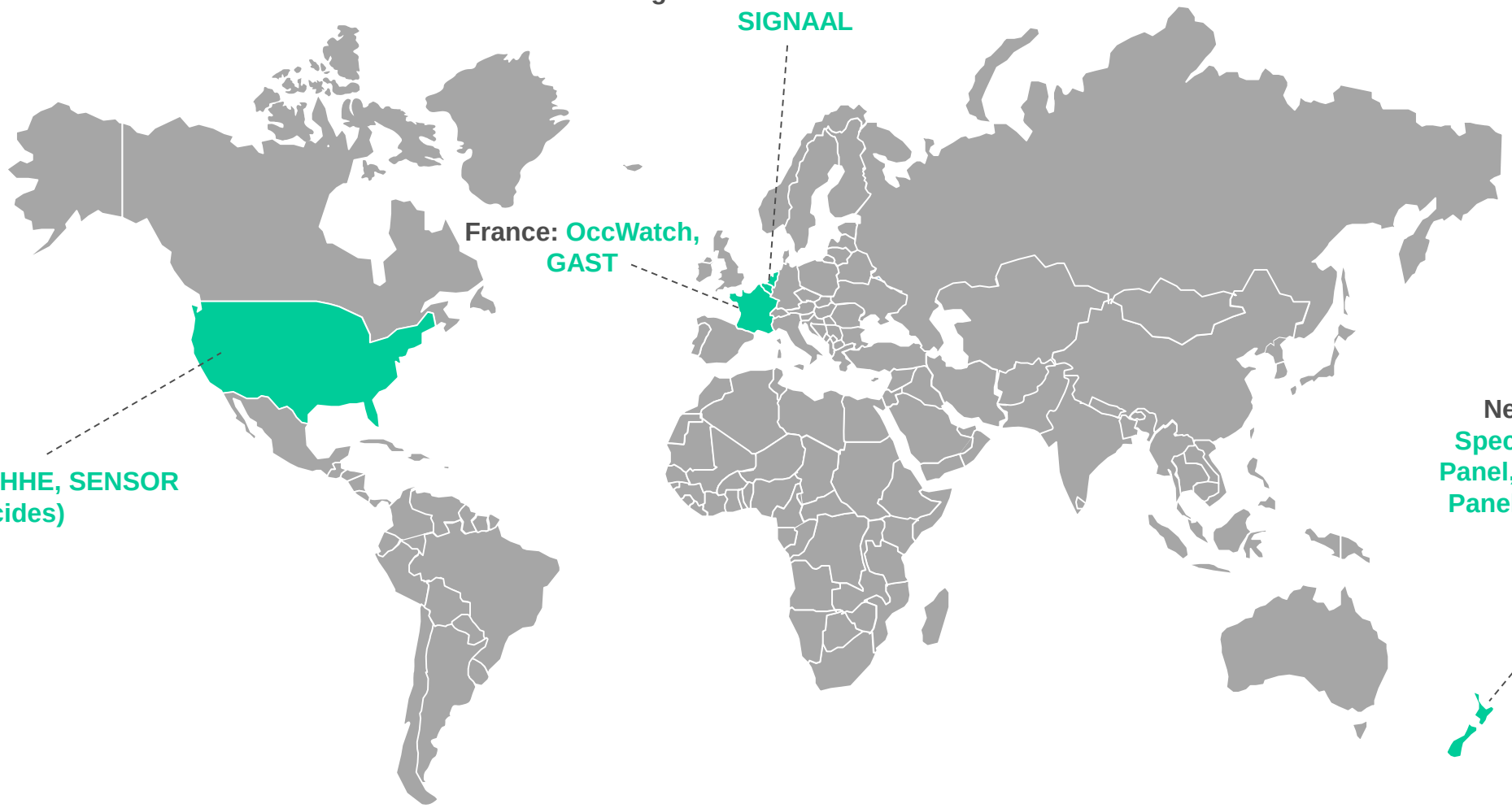
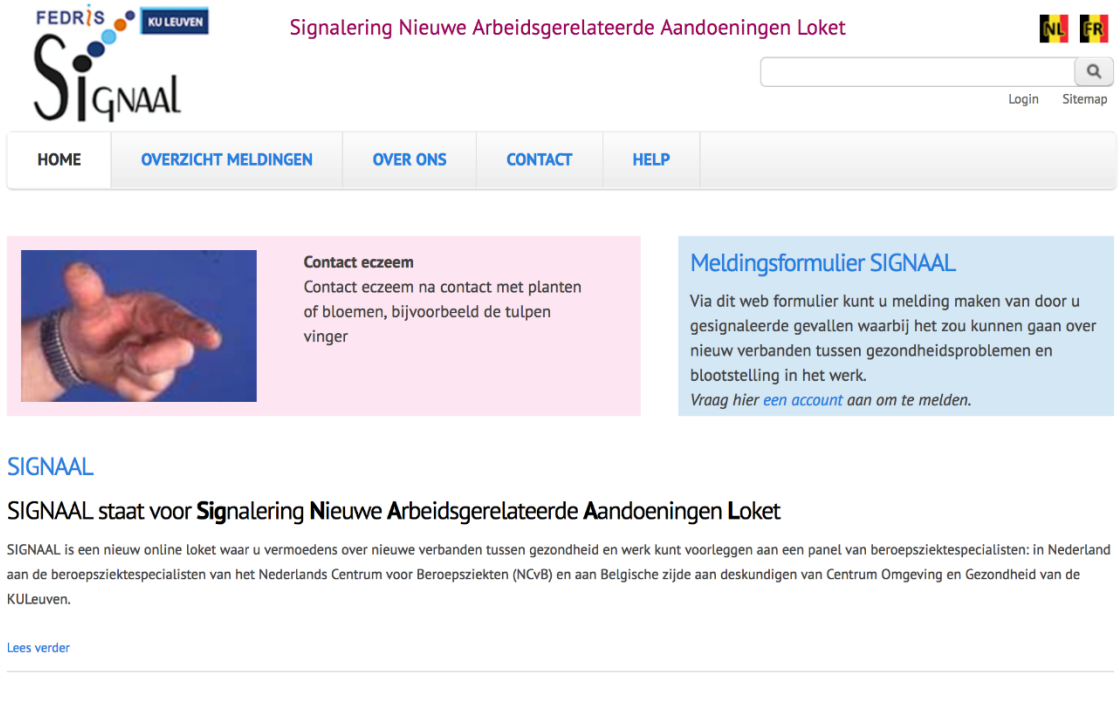
Sentinel systems

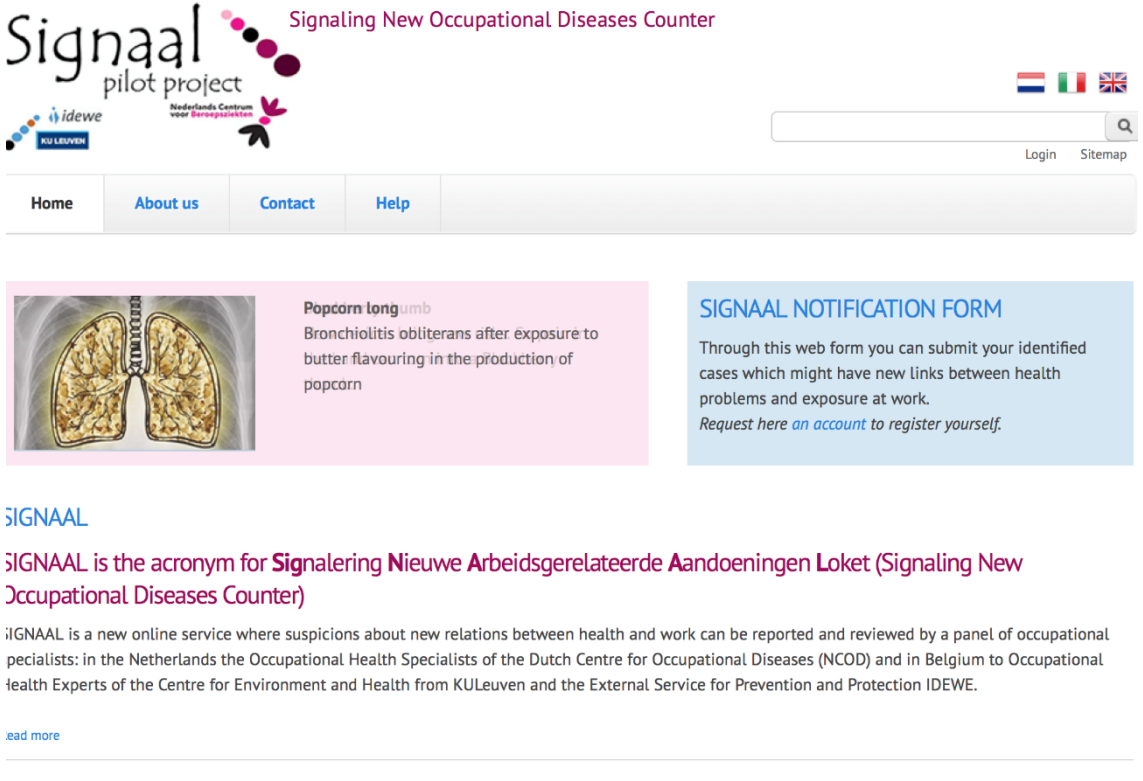


Sentinel systems

Mysignal.be



Signal.info



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Sentinel systems

1. Completeness of information to assess the case?
2. Known occupational or work-related health problem?
3. Preliminary literature search is performed
4. Evaluation of the work-relatedness
5. Prioritization for further research
6. Follow-up research
7. Conclusion

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Sentinel systems

Hill's Criterion	Evidence Summary	Probability (%) of criterion being true	Product of discriminant function± and probability, (C1)	Product of discriminant function± and probability, (C2A)
Constant			− 14.7799	− 10.0835
1. Strength	One study (Nijem) presented relative risk ratio of 1.7*	60	3.7338 (0.06223 × 60)	1.1538 (0.01923 × 60)
2. Consistency	Studies varied in symptoms and findings**	50	2.0305 (0.04061 × 50)	0.9015 (0.01803 × 50)
3. Specificity	No findings specific to diisocyanates	40	− 1.1148 (− 0.02787 × 0)	− 1.5508 (− 0.03877 × 0)
4. Temporality	All case reports preceded by diisocyanates exposure	100	7.657 (0.07657 × 100)	8.281 (0.08281 × 100)
5. Biologic gradient	Dose-response data lacking**	50	− 1.764 (− 0.03528 × 50)	− 1.767 (− 0.03534 × 50)
6. Plausibility	No mechanism of toxicity found	0	0.00 (0.23025 × 0)	0.00 (0.21689 × 0)
7. Coherence	No early objective effects or other abnormalities were measured as a result of exposures	0	0.00 (0.009621 × 0)	0.00 (− 0.00334 × 0)
8. Experimental evidence	Animal studies have not demonstrated neurotoxicity from diisocyanate exposure	0	0.00 (0.00843 × 0)	0.00 (− 0.00659 × 0)
9. Analogy	Data to similar class of agents lacking**	50	− 0.6470 (− 0.01294 × 50)	− 0.5055 (− 0.01011 × 50)
Probability of causality		Sum $e^{C1}/(e^{C1} + e^{C2A})$ 21.2%	C1 = − 4.8844	C2A = − 3.5705

Hughes MA, Carson M, Collins MA, Jolly AT, Molenaar DM, Steffens W, Swaen GM. Does diisocyanate exposure result in neurotoxicity? Clin Toxicol (Phila). 2014 Apr;52(4):242-57.

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Sentinel systems

BMJ Case Reports 2015; doi:10.1136/bcr-2015-212936

CASE REPORT

Ear and vestibular symptoms in train operators after sudden air pressure changes in trains

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+ Author Affiliations

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Accepted 4 December 2015
Published 17 December 2015

Summary

A healthy 31-year-old train operator presented to our occupational health clinic reporting ear aches, headaches, dizziness, unsteadiness and even slight tinnitus. These symptoms first appeared when the patient started operating from a new train cabin. He described a sudden pressure gradient, experienced on some parts of the trajectory, which might have caused these problems. Although the cabins were equipped with a pressure equalising device, this was usually switched off because of the device creating an uncomfortable feeling in the cabin. The literature describes sudden pressure gradients as possible factors for passenger discomfort.

TBV – Tijdschrift voor Bedrijfs- en Verzekeringsgeneeskunde
April 2016, Volume 24, Issue 4, pp 186–189

Ruik je dat niet? Reukstoornissen door blootstelling in het werk

Authors | Authors and affiliations

Annet Lenderink, Sanne Maleszka, Lode Godderis

Beroepsziekten
First Online: 15 April 2016
DOI: 10.1007/s12498-016-0072-2

Cite this article as:
Lenderink, A., Maleszka, S. & Godderis, L. TBV - Tijdschr Bedrijfs- en Verzekeringsgeneeskd (2016) 24: 186.
doi:10.1007/s12498-016-0072-2

23 Downloads

Samenvatting

Veel mensen ervaren wel eens dat ze minder goed kunnen ruiken, bijvoorbeeld na een verkoudheid. In zo'n periode is ook de smaak minder, maar gelukkig herstellen reuk en smaak zich meestal vanzelf weer, nadat de verkoudheid is verdwenen. Toch kan het reukvermogen door uiteenlopende oorzaken ook langdurig of blijvend worden aangetast en dat heeft grote invloed op het welbevinden en het functioneren van mensen.

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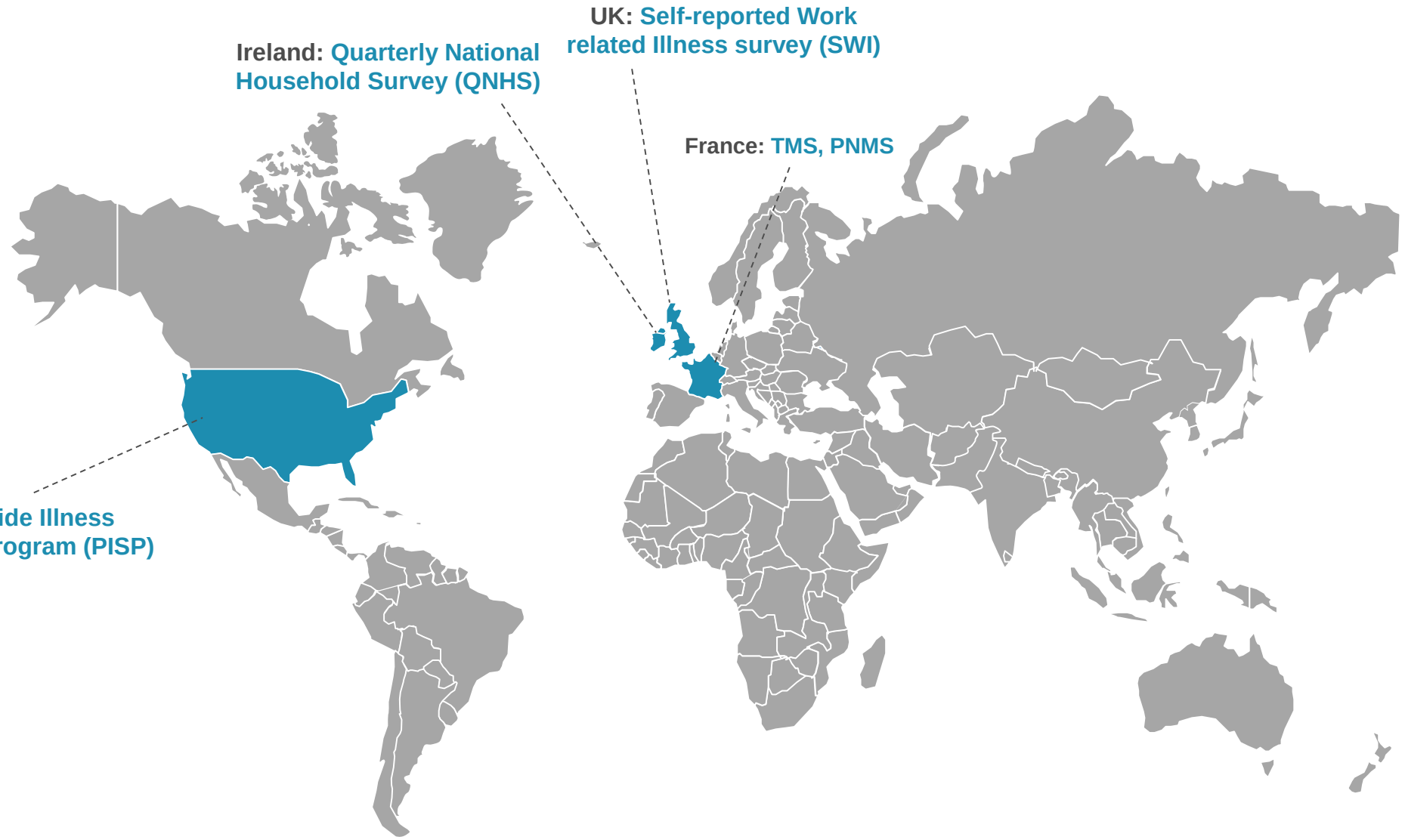
Public health systems



SENSOR Pesticides

Reporting sources

1) State Department of Agriculture

2) Poison Control Centers

3) Workers' Compensation System

SENSOR Pesticides

The collected data on each poisoning case are organised using **standardized variables**:

- **Administrative and demographic variables**
- **Occupation and industry data** (coded)
- **Exposure description**: type of exposure (drift, direct spray, indoor air, contact, etc.), route(s) of exposure, the person's activity at the time of exposure, protective equipment worn by the exposed person, equipment used to apply the pesticide, where the pesticide was being applied, etc.
- **Chemical information**: information on the pesticide products associated with the exposed person's illness or injury
- **Health effects description**
- **Investigation findings**
- **Case classification** (probability, severity)

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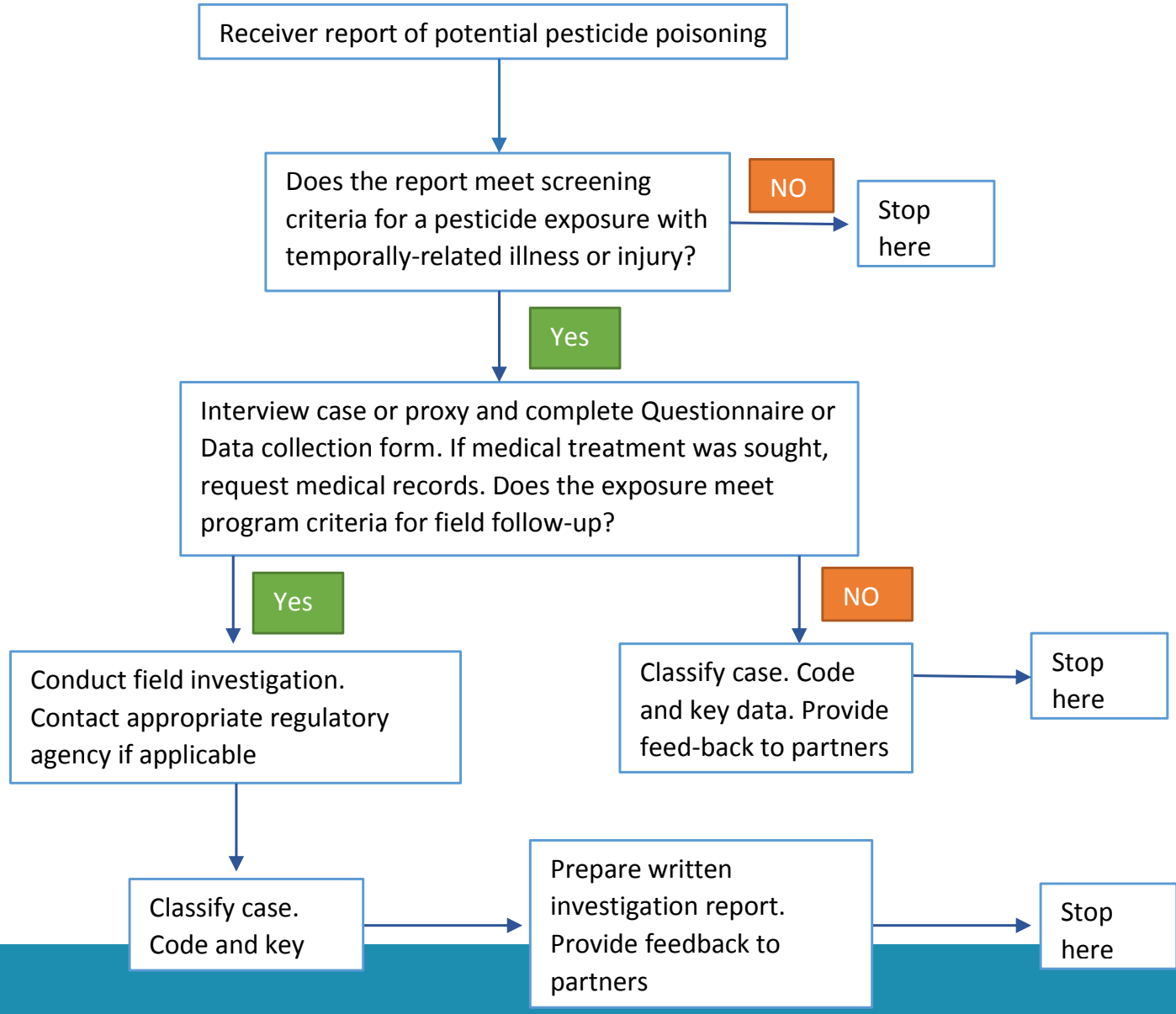
Flow diagram to show steps in the follow-up of pesticides poisoning reports

(adapted from NIOSH's Pesticide=related illness and injury surveillance - How-To Guide for State-Based Programs; https://www.cdc.gov/niosh/docs/2006-102/pdfs/2006-102.pdf)



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SENSOR Pesticides

Example of new WRD

- SENSOR data from **2001** to **2005** were analysed to investigate possible health risks related to exposure to **pyrethrins** and **pyrethroids** (widely used pesticides introduced as a substitution for organophosphates)
- SENSOR data revealed several pyrethrin or pyrethroid pesticide poisonings, of which approximately one-quarter were **work-related cases**
- A list of reported clinical signs and symptoms revealed several **additional health effects** that had not been previously recognised in this context (mainly respiratory symptoms)
- Significant association was found between the presence of **pre-existing conditions** such as allergies, asthma, chemical sensitivity, and illness severity

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SENSOR Pesticides

LINK WITH PREVENTION

Environmental Protection Agency

Ongoing re-evaluation process of new chemicals

Restrictions on pesticides use

Identification of **vulnerable** groups (pregnant farm workers, adolescent workers, etc.)

Preventive actions and policies

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SENSOR Pesticides

List of recommendations:

- **EPA**: (1) Change product labels for unrestricted pesticides to warn sensitive subpopulations to avoid exposure, lengthen the amount of time people are advised to wait before entering a treated area; (2) require commercial applicators to initiate mechanical ventilation for indoor applications of pyrethroid products; (3) define optimal mechanical ventilation.

- **State agencies or health departments**: (1) Continue to monitor the health effects of indoor use of pyrethrins and/or pyrethroids; (2) develop outreach to organizations that educate asthma and allergy patients on potential risks of these pesticides; (3) educate applicators and consumers about the importance of reading pesticide product labels and directions.

- **Emergency response workers**: (1) Evaluate protective equipment and response protocols, and respiratory protection when entering enclosed environments; and (2) know how to locate information on chemical hazards.

- **Health-care providers**: (1) Be aware that these chemicals are respiratory irritants and have the potential to cause severe and prolonged asthmatic reactions; (2) be aware that cases of pesticide exposure or poisoning are reportable conditions to public health authorities; and (3) obtain an adequate history of any exposures that could cause or exacerbate disease.

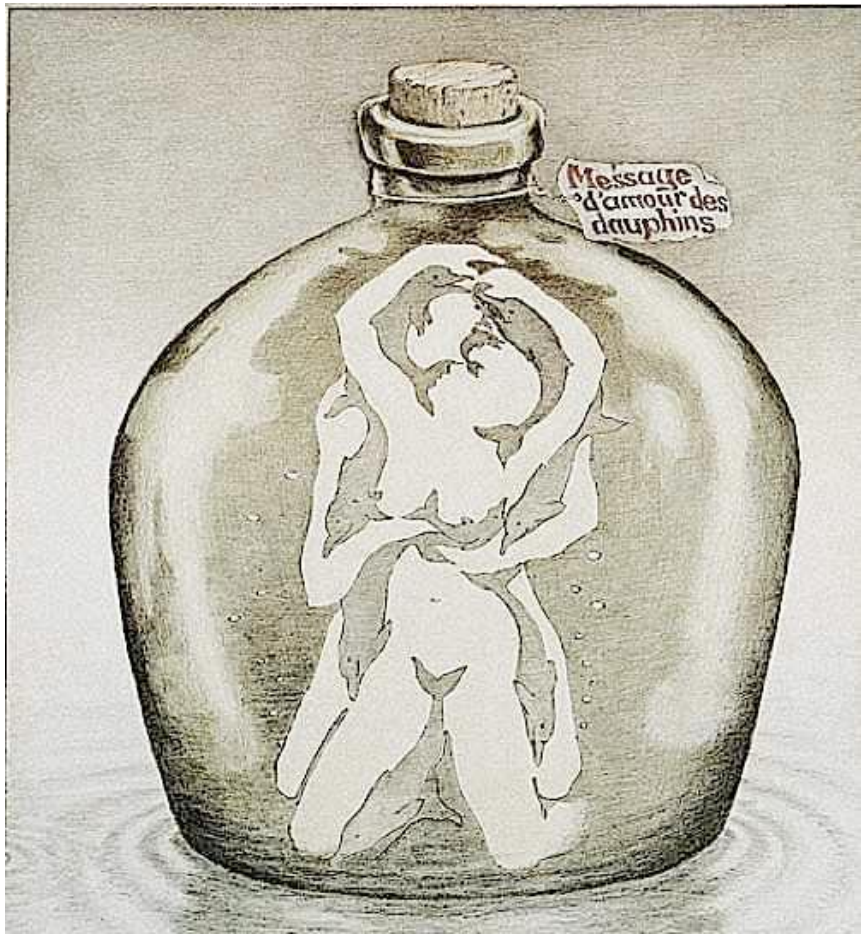
Conclusion 2

Deduction

Induction

Conclusion

3



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Thank you for your attention!

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Periodical check-up?

Should we abandon the periodic health examination?

Micheal Howard-Tripp MBChB CCFP

YES

In 2009, IMS Health published a statistical snapshot of the top 10 reasons patients in Canada visit family physicians and other specialists.[1] Second only to visits for hypertension was "general medical exam" at 10.5 million visits per year. Assuming fee-for-service remuneration, and considering that on average a routine medical examination (also known as an annual physical or a periodic health examination [PHE]) takes up double the time of a regular appointment, this represents approximately 21.4 million appointments a year at an expense of $2 billion in consultation costs alone. Add to this the expense of all the unnecessary testing, investigations, and recalls, and I would estimate the total cost to be much greater. I believe that the Canadian Medicare system can no longer sustain this resource-intensive, non–evidence-based practice.

Outdated

Historically, the annual physical is a generalized head-to-toe examination, accompanied by comprehensive multiphasic investigation and laboratory screening. The roots of the annual physical date back to 1861, with economics being the prime motivating force for its continuance.[2] In the 1970s and 1980s, both the Canadian Task Force on the Periodic Health Examination and the United States Preventive Services Task Force recommended abandoning the comprehensive systemic examination in favour of case-finding maneuvers during regular visits. Scheduling appropriate evidence-based preventive care during regular visits is achievable, particularly with the increasing computerization of practices.

Efforts to streamline complete health assessments[3] and to focus on evidence-based interventions of known efficacy, while improving delivery of some recommended services, have failed to halt annual, non–evidence-based, head-to-toe examinations and multiphasic testing. Essentially, there is no difference between an annual physical and a PHE, except in the terminology. Patients and physicians alike still refer to it as an annual physical, and two-thirds of both physicians and patients still believe that it involves a head-to-toe examination and multiphasic testing.[4,5] I commonly see nonrecommended tests, such as complete blood count, liver function, thyroid-stimulating hormone, vitamin B12, and even international normalized ratio and troponin testing being routinely ordered for healthy individuals.

Better use of resources

Of particular importance is that patients who already regularly visit family physicians, and even patients who already have 4 extended chronic-disease visits per year, are also those most likely to schedule dedicated PHEs. There is no convincing evidence that having a dedicated appointment for a PHE, in place of case-finding maneuvers during regular visits, leads to better health outcomes, or that those who undergo this annual ritual are healthier or have decreased morbidity and mortality compared with those who do not. In fact, there is sufficient evidence to show that many of the investigations conducted during the PHE might be harmful and not in the best interests of the patient.[6] Advocating for patients includes not subjecting them to unnecessary medical interventions, and both the *CMA Code of Ethics*[7] and the College of Family Physicians of Canada's 4 principles of family medicine[8] make mention of a responsibility for the judicious use of health care resources.

A disturbing emerging trend is that of practices offering improved access and services for an annual user fee. One of the cornerstones of the "improved care" offered by these practices is a "comprehensive health assessment,"[9] which claims to be evidence-based. These assessments can take anywhere from 3 hours to 3 days and include non–evidence-based investigations, such as whole-body computed tomography scanning, and might in fact be more harmful than beneficial.[9]

One of the main arguments in favour of a PHE is that preventive care services are more likely to take place during a dedicated visit.[10] With the computerization of medical practices, it should not be difficult to schedule necessary preventive care at appropriate intervals and during regular visits. A substantial proportion of taxpayers' money is being spent on electronic medical records, and already the public is demanding a return on their investment. In essence, every acute care visit should also include a component of preventive care.

While physicians are spending a substantial amount of their time conducting PHEs, provincial governments are having to rely more on nurse practitioners, pharmacists, and other health professionals to provide acute care to those in need. Emergency departments are filled with patients who would be better served by family physicians, and most of these patients do not receive any preventive care.

Provincial funding agencies need to discontinue paying for dedicated PHEs and redirect those fees to primary care practices that are absorbing new patients, providing patients with medical homes, and using their

Should we abandon the periodic health examination?

Cleo A. Mavriplis MD CCFP FCFP

NO

It is often difficult to dedicate time for preventive care in a busy family practice. Patients seem to consult their family doctors more for specific health complaints than for advice on prevention. The periodic health examination (PHE) is a tradition in North America; however, it is not used in most other countries, such as the United Kingdom, where preventive care is still delivered. Do we really need the PHE in Canada?

The PHE can advance 2 critical elements of care for our patients: relationship building and preventive care. A large systematic review of studies on the value of periodic health evaluation found that the PHE was consistently associated with an improved delivery of Papanicolaou tests, cholesterol screening, and fecal occult blood testing.[1] The PHE was also found to decrease patient worry. A third of the studies reviewed were done before 1989, before large-scale dissemination of Canadian and American task force recommendations on preventive care. As the number of evidence-based preventive care recommendations grows, a PHE that offers a planned focus on preventive care might become even more valuable.

Time for prevention

Many provincial health care billing systems in Canada currently include a fee for an annual examination, a visit usually double the length of time of the average visit. Having more allotted time allows physicians to deal with their patients' immediate concerns as well as to pursue other issues that might be neglected over the course of a year. Many physicians appreciate a longer visit to obtain a more holistic view of their patients, via discussions about family, work, and social life. These conversations build relationships, give context to medical issues, and provide opportunities to screen for less obvious conditions, such as depression (an evidence-based recommendation). A longer visit also provides time to inquire about exercise and lifestyle issues, as symptom-driven discussions at other visits might preclude this. A regularly scheduled health examination helps build important rapport and understanding, while enabling the delivery of preventive care; for healthy individuals, this is often the only contact they have with their family physicians.

A certain proportion of our patient population is already used to receiving PHEs, and many physicians have been informing patients of the new focus on preventive care. Taking advantage of an established cultural habit, we can piggyback much-needed preventive care onto these visits. Unfortunately, patients in lower socioeconomic groups[2] and some other subsets of patients (eg, new immigrants,[3] men,[4,5] and African-American men[6]) are less likely to attend preventive care visits. Research is needed to ascertain how to reach these populations more effectively and include them in preventive care maneuvers. For those patients who do not welcome regularly scheduled PHEs, physicians should develop flexible approaches and pursue other opportunities for preventive screening and delivery of preventive care when appropriate.

Some physicians feel overwhelmed or distracted by the long list of symptoms that patients often bring to the appointment. Learning to reframe the agenda with the patient has helped many learners manage these situations. Additionally, educating the patients in your practice with handouts explaining the PHE's focus on prevention might help raise the profile of that aspect of the visit. Providing questionnaires for patients to fill out in the waiting room can streamline the process. I worked in a clinic where the patients completed a lifestyle questionnaire as well as a short functional inquiry before being seen by the doctor. I found this to be a time-saving measure, as a quick look helped me to identify areas to focus on and general patterns pointing to problems, such as anxiety or mental health concerns.

Although it is true that preventive care can be delivered well without the PHE, or can be carried out by nonphysician members of primary care teams, it is nonetheless a valuable tool. If considering eliminating the PHE, physicians should review what else they have in place to meet the need for preventive care and health promotion. Similarly, physicians should consider what opportunities will be provided to ensure that building relationships and working to put patients' care issues into context are not continually overshadowed by the pressing concerns of that day.

Use what works

One size does not fit all. If a longer appointment for preventive services and holistic care does not work well for certain patients or family physicians, they should be free to use a different system. But don't throw out the baby with the bath water—if the PHE works for many patients and physicians, why abandon it? To improve delivery of the PHE, we need to educate patients on the importance of a dedicated visit for preventive maneuvers. We need

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Periodical check-up?

From: **Data warehouse for detection of occupational diseases in OHS data**

Occup Med (Lond). 2015;65(8):651-658. doi:10.1093/occmed/kqv074

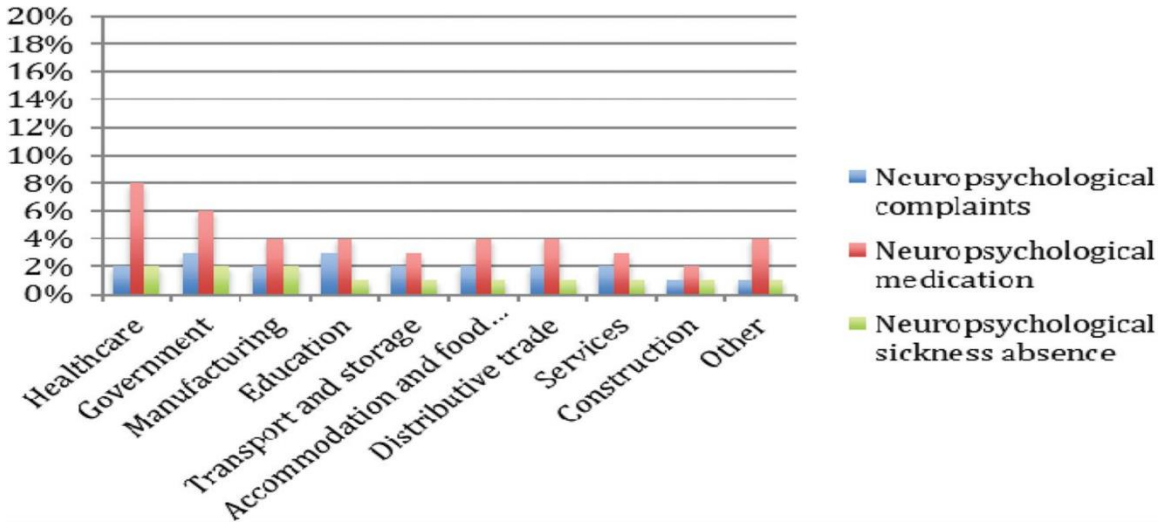

Figure Legend:
Proportion of employees per sector with a registered neuropsychological health complaint, medication use or sickness absence in 2013.