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## The words of prevention, part II: ten terms in the realm of quaternary prevention

As palavras da prevenção, parte II: dez termos no âmbito da prevenção quaternária

*Las palabras de la prevención, parte II: diez términos en el ámbito de la prevención cuaternaria*

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### Abstract

**Objective:** this part II article about the 'words of prevention' presents in a terminological way the content of ten current concepts used in the prevention domain which are closely linked to quaternary prevention: (1) overinformation; (2) overdiagnosis; (3) medically unexplained symptoms; (4) overmedicalization; (5) incidentaloma; (6) overscreening; (7) overtreatment; (8) shared decision making; (9) deprescribing; and (10) disease mongering. **Methods:** with the support of the laboratory team of the University of Rouen, France, which is dedicated to medical terminology and semantic relationships, it was possible to utilize a graphic user interface (called DBGUI) allowing the construction of links for each of chosen terms, and making automatic links to MeSH, if any. Those concepts are analyzed in their environment in current literature, as well as in their MeSH counterparts, if any, and related semantic online terminologies. **Results and Discussion:** the rules in terminological development aspire to cover the whole field of a concept and in the meantime, they can help to avoid the noise due to proxy and not exactly related issues. This refers to exhaustivity and specificity in information retrieval. Our finds show that referring to MeSH only in information retrieval in General Practice/Family medicine can induce much noise and poor adequacy to the subject investigated. **Conclusion:** gathering concepts in specially prepared terminologies for further development of ontologies is a necessity to enter in the semantic web area and the era of disseminated data in family medicine.

### Keywords:

Quaternary Prevention  
Family Practice  
Terminology as Topics  
Semantics

### Resumo

**Objetivo:** este artigo parte II sobre as 'palavras da prevenção' apresenta de uma forma terminológica o conteúdo de dez conceitos atuais utilizados no domínio da prevenção, que estão intimamente ligados à prevenção quaternária: (1) sobrecarga de informação; (2) sobrediagnóstico; (3) sintomas sem explicação médica; (4) sobremedicalização; (5) incidentaloma; (6) sobrerastreamento; (7) sobretratamento; (8) tomada de decisão compartilhada; (9) desprescrição; e (10) comercialização de doenças. **Métodos:** com o apoio da equipe do laboratório da Universidade de Rouen, França, que se dedica à terminologia médica e às relações semânticas, foi possível utilizar uma interface gráfica de usuário (chamado DBGUI) permitindo a construção de links para cada um dos termos escolhidos, fazendo ligações automáticas para o MeSH, caso houvesse. Estes conceitos foram analisados no seu ambiente na literatura corrente, bem como os seus homólogos no MeSH, caso houvesse, e terminologias semânticas online a eles relacionadas. **Resultados e Discussão:** as regras em desenvolvimento terminológico aspiram cobrir todo o campo de um conceito, ao mesmo tempo em que podem auxiliar a evitar ruídos devido a aproximações e questões não exatamente relacionadas. Isto se refere à exaustividade e especificidade na recuperação da informação. Nossos achados mostram que referir-se somente ao MeSH na recuperação de informação em medicina de família pode induzir muito ruídos e uma pobre adequação em relação ao tema investigado. **Conclusão:** reunir conceitos em terminologias especialmente preparadas para um maior desenvolvimento de ontologias é uma necessidade para se adentrar na área da rede semântica e da era de dados disseminados em medicina de família.

### Palavras-chave:

Prevenção Quaternária  
Medicina de Família e  
Comunidade  
Terminologia como Assunto  
Semântica

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## Resumen

**Objetivo:** este artículo parte II de las 'palabras de prevención' presenta en una forma terminológica el contenido de diez conceptos actuales utilizados en el dominio de la prevención que están estrechamente vinculados a la prevención cuaternaria: (1) sobreinformación; (2) sobrediagnóstico; (3) síntomas sin explicación médica; (4) sobremedicalización; (5) incidentaloma; (6) sobretamizaje; (7) sobretratamiento; (8) toma de decisiones compartida; (9) deprescripción; y (10) tráfico de enfermedades. **Métodos:** con el apoyo del equipo de laboratorio de la Universidad de Rouen, Francia, que se dedica a la terminología médica y las relaciones semánticas, fue posible utilizar la interfaz gráfica de usuario (llamado DBGUI) permitiendo la construcción de enlaces para cada uno de los términos elegidos, y estableciendo vínculos automáticos al MeSH, en su caso. Esos conceptos fueron analizados en el contexto de la literatura actual, así como en sus homólogos MeSH, en su caso, y terminologías semánticas relacionados online. **Resultados y Discusión:** las reglas en el desarrollo terminológico aspiran a cubrir la totalidad del ámbito del concepto y, mientras tanto, ayudan a evitar el ruido debido al proxy y temas no relacionados con exactitud. Esto se refiere a la exhaustividad y especificidad en la recuperación de informaciones. Nuestros hallazgos muestran que al referir-se solamente al MeSH la recuperación de información en Medicina General/Medicina Familiar puede inducir a mucho ruidos y mala adecuación al tema investigado. **Conclusión:** la recopilación de conceptos en terminologías especialmente preparados para un mayor desarrollo de ontologías es una necesidad para entrar en el área de la web semántica y en la era de los datos diseminados en medicina familiar.

## Palabras clave:

Prevención Cuaternaria  
Medicina Familiar y Comunitaria  
Terminología como Asunto  
Semántica

## Introduction

There are striking differences in the world of reference<sup>1,2</sup> of General Practice/Family Medicine comparing to those of academic and other specialized branches of medicine. These differences started to be addressed in the part I of this paper. The part I article identified some of the main words of prevention, representing the P4 paradigmatic shift from a chronological based prevention towards a constructivist view based on patient-doctor relationships. It also discussed words such as clinical prevention, primary prevention, secondary prevention, tertiary prevention, and quaternary prevention.

This part II article discusses other P4 related concepts such as overinformation, overdiagnosis, medically unexplained symptoms, overmedicalisation, incidentaloma, overscreening, overtreatment, shared decision making, deprescribing and disease mongering. Since family doctors do not use the same wording as patients, librarians or focal medical specialists (consultants), there is a need for disambiguation of meanings, which rules health information retrieval and consequently high-precision information retrieval tools are needed.<sup>3</sup> As a by-product of patient-doctor relationships, quaternary prevention encompasses concepts that, each of them deals with ethical issues in day to day medicine. These concepts are the focus of this paper as shown in Table 1.

**Table 1.** Ten terms related to quaternary prevention in the Q-Codes list available online.<sup>4</sup>

QD44	Quaternary Prevention	Prévention Quaternaire	Prevención Cuaternaria	Prevenção Quaternária
QD440	overinformation	surinformation	exceso de información	sobrecarga de informação
QD441	medically unexplained symptom	sympôme médicalement inexpliqué	síntoma sin explicación médica	sintoma sem explicação médica
QD442	overmedicalisation	surmédicalisation	sobremedicalización	sobremedicalização
QD443	deprescription	déprescription	deprescripción	desprescrição
QD444	shared decision making	prise de décision partagée	toma de decisiones compartida	tomada de decisão compartilhada
QD445	incidentaloma	fortuitome	incidentaloma	incidentaloma
QD446	disease mongering	fabrication de maladie	tráfico de enfermedades	comercialização de doenças
QD447	overscreening	surdépistage	sobretamizaje	sobrerastreamento
QD448	overtreatment	surtraitement	sobretratamiento	sobretratamento
QD449	overdiagnosis	surdiagnostic	sobrediagnóstico	sobrediagnóstico

Source: elaborated by the authors, 2015.

Retrieving literature with existing MeSH descriptors can be sometimes a big challenge for the above incisive concepts in the field of GP/FM.<sup>5</sup> Hence, we have decided to explore the literature about those domains (Table 1) and report the most popular words in Family Medicine, echoing the research in the same domain by epidemiologists and hospital based specialists.<sup>6</sup> The help of the Rouen Institute for Research and Innovation in Biomedicine team<sup>7</sup> has been seminal in developing the relationships of those concepts with the appropriate methods, paving the way of health care semantics.

The impact of computer science on terminological issues is striking and family doctors have to understand that mastering the production and management of knowledge lies at their doorstep. They have to become familiar with semantic web technologies and related language processing as the computer will become omnipresent in their daily lives in a near future. For a GP, understanding health information gateways is as important as to understand Evidence-Based Medicine (EBM) or pharmacology. This paper highlights some basic steps necessary to master health information.

## Methods

The computer laboratory of the University of Rouen, France, dedicated to medical terminology and semantic relationships, maintain 50 terminologies crossing website, linked by semantic web technologies under the URL of <http://www.hetop.eu/hetop/>.<sup>8</sup> The Medical Subject headings have been historically the first mapping of this semantic tool. The team of Rouen laboratory has put at disposal a graphic user interface, called DBGUI (Figure 1) allowing the construction of links for each chosen term and automatic link to MeSH, if any. As stated in the first part of this paper, MeSH sometimes does not fully cover the field of GP/FM or proposed terms which content are historically marked.<sup>9</sup> An external observer, expert in the domain of Family Medicine, has to verify the proposed links.

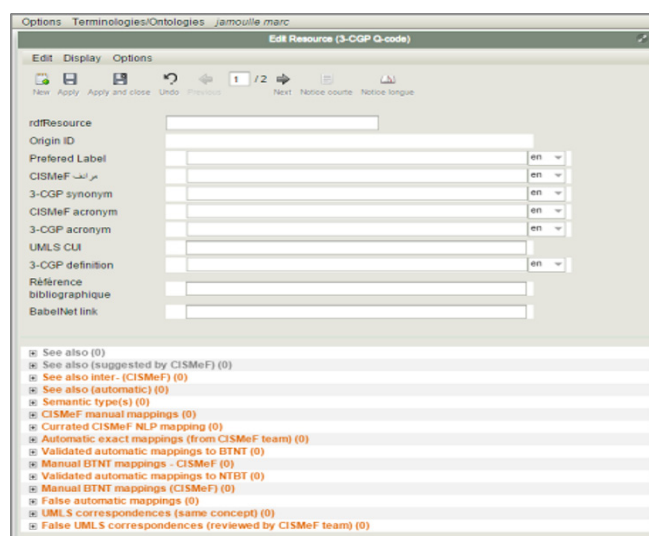


Figure 1. The DBGUI interface.

Source: Rouen computer laboratory.<sup>7</sup>

Gomes et al. have pointed out, in a paper on medical education in this special issue on P4, the vicious cycle identified in patient-doctor communication. The link between lay and professional terms is essential to enhance communication in primary care. This is the reason for the links of the DBGUI being completed with chosen links to Babelnet.org<sup>10</sup> and to Dbpedia,<sup>11,12</sup> one of the main nodes of the Linked data world<sup>13</sup> and, consequently, with Wikipedia.<sup>14</sup>

Gathering concepts in specially prepared terminologies for further development of ontologies is a necessity to enter in the semantic web area and the era of disseminated data.<sup>15</sup> The present results open the way to build a comprehensive set of main themes addressed by GPs during some conferences.<sup>16-18</sup> Those concepts have been identified by one author (MJ) by a careful content analysis of more than 1600 abstracts of congresses of Family Medicine. This is an ongoing work and we

have chosen to show the terminological content of ten out of 198 experimental descriptors referred as Q-Codes<sup>5</sup> obtained by careful analysis of GP/FMs' congresses communications. The interface allows the user to build a terminological record by entering an ID (identification number) following by the Preferred label of a term, the synonyms and acronyms, if any, the most appropriate definition with bibliographic citation, the links to Babelnet.org and to Dbpedia or to other relevant semantic links. Internal links to already existing terminologies in hetop.eu can be chosen manually (in grey in the Figure 1) or automatically proposed by the interface which allows corrections (in red in the Figure 1). All the gathered data can be expressed in Web Ontology Language (OWL),<sup>19</sup> the computer language used in the semantic web for Health Care and Life Sciences.<sup>20</sup>

**Table 2.** Ten terms related to quaternary prevention: links, definitions, sources and bibliographic citations, 2015.

Q-Code		QD440
Pref. Term (PT)	Overinformation (health)	
Syn	Misinformation, fake information	
French PT	Surinformation	
Spanish PT	Exceso de información	
Portuguese PT	Sobrecarga de informação	
Definition	<p>Information overload as: a perception on the part of the individual (or observers of that person) that the flows of information associated with work tasks is greater than can be managed effectively, and a perception that overload in this sense creates a degree of stress for which his or her coping strategies are ineffective. (Wilson, 2001).</p> <p>Healthcare delivery systems, investigators and healthcare providers may be denying their patients opportunities to make informed decisions about their health and healthcare. This occurs when they provide documents requiring reading skills that do not match patient literacy skills and runs counter to calls to provide linguistically and culturally appropriate patient information in the practice of medicine.(Calderón, 2004).</p> <p>Wilson, TD. "Information overload: implications for health-care services" Health Informatics Journal, 2001; 7(2):112-117  <a href="http://www.informationr.net/tdw/publ/papers/2001IOHealth.html">http://www.informationr.net/tdw/publ/papers/2001IOHealth.html</a></p> <p>Nogales-Gaete J, Vargas-Silva P, Vidal-Cañas I. Clinical, ethical and legal issues on medical information to patients and relatives. Rev. méd. Chile, 2013; 141(9):1190-1196. <a href="http://dx.doi.org/10.4067/S0034-98872013000900012">http://dx.doi.org/10.4067/S0034-98872013000900012</a>.</p> <p>Calderón JL, Beltrán RA. Pitfalls in Health Communication: Healthcare Policy, Institution, Structure, &amp; Process. Medscape General Medicine. 2004;6(1):9. <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1140704/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1140704/</a></p>	
Bib. citations		
MeSH	<p>Qualifier needed: Information Dissemination/ethics*</p> <p>The circulation or wide dispersal of information.</p> <p>Qualifier needed: Information Seeking Behavior/ethics*</p> <p>How information is gathered in personal, academic or work environments and the resources used.</p>	
Pubmed	<p>0 citation for "overinformation". 128,460 for "over information" (first in 1912)</p> <p>bn:03275456n</p>	
Babelnet	<p>Information overload · infobesity · infoglut</p> <p>Information overload refers to the difficulty a person can have understanding an issue and making decisions that can be caused by the presence of too much information.</p>	
DBPedia	<a href="http://en.wikipedia.org/wiki/Information_overload">http://en.wikipedia.org/wiki/Information_overload</a>	
Q-Code		QD441
Pref. Term (PT)	Medically unexplained symptom	
Syn	MUS	
French PT	Symptôme médicalement inexpliqué	
Spanish PT	Síntoma sin explicación médica	
Portuguese PT	Sintoma sem explicação médica	

Table 2. Continued...

Q-Code		QD440
Definition		Medically Unexplained Symptoms (MUS) that may, or may not, be due to physical disease, which capture conditions characterized by symptoms without corresponding objective findings, often associated with high costs, both direct (health care use) and indirect costs (productivity loss due to sickness absence) such as asthenia, low back pain, fibromyalgia, irritable bowel syndrome, or chronic fatigue syndrome, as well as symptoms stemming from a specific somatic disease that is more severe, more persistent, or limit functioning to a greater extent than expected, based on (objective) disease parameters. Patients with MUS often experience significant disability and have difficulty accessing appropriate care (Adapted from Olde Hartman, 2013; Aamland et al., 2014; and Rask et al., 2015).
Bib. Citations		Olde Hartman TC, Woutersen-Koch H, Van der Horst HE. Medically unexplained symptoms: evidence, guidelines, and beyond. <i>The British Journal of General Practice</i> . 2013;63(617):625-626. doi:10.3399/bjgp13X675241. Aamland A, Malterud K, Werner EL. Patients with persistent medically unexplained physical symptoms: a descriptive study from Norwegian general practice. <i>BMC Fam Pract</i> , 2014, 15(1):107doi:10.1186/1471-2296-15-107. Rask MT, Rosendal M, Fenger-Grøn M, Bro F, Ørnbøl E, Fink P. Sick leave and work disability in primary care patients with recent-onset multiple medically unexplained symptoms and persistent somatoform disorders: a 10-year follow-up of the FIP study. <i>Gen Hosp Psychiatry</i> , 2015;37(1):53–9. 10.1016/j.genhosppsych.2014.10.007
MeSH		None
Pubmed		958 citations for “medically unexplained symptoms” (first 1980) 239 citations for “medically unexplained symptom” (first 1987) bn:03305496n
Babelnet		Medically unexplained physical symptoms or medically unexplained symptoms are patient symptoms for which the treating physician, other healthcare providers, and research scientists have found no medical cause
DBPedia		<a href="http://dbpedia.org/page/Medically_unexplained_physical_symptoms">http://dbpedia.org/page/Medically_unexplained_physical_symptoms</a>
Q-Code		QD442
Pref. Term (PT)		Overmedicalization
Syn		Unnecessary health care, futile health care
French PT		Surmédicalisation
Spanish PT		Sobremedicalización
Portuguese PT		Sobremedicalização
Definition		Overmedicalization - an excess of exposure to – or seeking for healthcare to an extent in which does not confer any benefit in terms of health and welfare, directly related to the terms: overscreening, overdiagnosis, overtreatment (Cardoso, 2015).
Bib. Citations		Cardoso RV. Prevenção quaternária: um olhar sobre a medicalização na prática do médico de família. <i>Rev Bras Med Fam Comunidade</i> . 2015;10(35):1117. Disponível em: <a href="http://dx.doi.org/10.5712/rbmfc10(35)1117">http://dx.doi.org/10.5712/rbmfc10(35)1117</a>
MeSH		Partially related to: MeSH Medicalization A process by which nonmedical problems become defined and treated as medical problems, usually in terms of illnesses, or disorders. ( <i>Annu Rev Sociol</i> , 1992 18:209)
Pubmed		12 citations for “overmedicalization” (first 1984) 6 for “overmedicalisation” (first in 2011) 140 for “over medicalization” (first 1979) bn:15974546n
Babelnet		Unnecessary health care; Unnecessary health care is health care provided with a higher volume or cost than is appropriate.
DBPedia		<a href="http://dbpedia.org/page/Unnecessary_health_care">http://dbpedia.org/page/Unnecessary_health_care</a>
Q-Code		QD443
Pref. Term (PT)		Deprescription (deprescribing)
Syn		Drug utilization review (DUR) Medication therapy management programs (MTM)
French PT		Deprescription
Spanish PT		Deprescripción
Portuguese PT		Desprescrição

Table 2. Continued...

Q-Code	QD440
Definition	Drug utilization review (DUR) is defined as an authorized, structured, ongoing review of prescribing, dispensing and use of medication. DUR encompasses a drug review against predetermined criteria that results in changes to drug therapy when these criteria are not met. It involves a comprehensive review of patients' prescription and medication data before, during and after dispensing to ensure appropriate medication decision-making and positive patient outcomes. As a quality assurance measure, DUR programs provide corrective action, prescriber feedback and further evaluations (Navarro, 2008).
Bib. Citations	Navarro R. Chapter 8: Drug utilization review strategies. In Managed Care Pharmacy Practice, pp. 215-229, 2008. Ai AL, Carretta H, Beitsch LM, Watson L, Munn J, Mehriary S. Medication Therapy Management Programs: Promises and Pitfalls. J Manag Care Spec Pharm. 2014;20(12):1162–82. <a href="http://www.ncbi.nlm.nih.gov/pubmed/25443511">http://www.ncbi.nlm.nih.gov/pubmed/25443511</a>
MeSH	Drug Utilization Review: Assistance in managing and monitoring drug therapy for patients receiving treatment for cancer or chronic conditions such as asthma and diabetes, consulting with patients and their families on the proper use of medication; conducting wellness and disease prevention programs to improve public health; overseeing medication use in a variety of settings. Medication Therapy Management: Formal programs for assessing drug prescription against some standard. Drug utilization review may consider clinical appropriateness, cost effectiveness, and, in some cases, outcomes. Review is usually retrospective, but some analysis may be done before drugs are dispensed (as in computer systems which advise physicians when prescriptions are entered).
Pubmed	39 citations for "deprescribing" (first in 2007) bn:16582550n
Babelnet	Deprescribing is the process of tapering, withdrawing, discontinuing or stopping medications to reduce polypharmacy, adverse drug effects and inappropriate or ineffective medication use.
DBPedia	<a href="http://dbpedia.org/page/Deprescribing">http://dbpedia.org/page/Deprescribing</a>
Q-Code	QD 444
Pref. Term (PT)	Shared decision making
Syn	SDM
French PT	Prise de décision partagée
Spanish PT	Toma de decisiones compartida
Portuguese PT	Tomada de decisão compartilhada
Definition	Under a shared decision making (SDM) process, health care practitioners and patients work together to make joint decisions about a patient's care. SDM requires that patients should be educated about and understand risks and benefits of their options. SDM is an important part of patient-centered care; education is often through the use of decision aids such as pamphlets, videos, and computerized tools. (Cochrane, Légaré, 2010). Légaré F, Ratté S, Stacey D, Kryworuchko J, Gravel K, Graham ID, et al. Interventions for improving the adoption of shared decision making by healthcare professionals. Cochrane database Syst Rev. 2010; (5):CD006732. Available from: <a href="http://www.ncbi.nlm.nih.gov/pubmed/20464744">http://www.ncbi.nlm.nih.gov/pubmed/20464744</a>
Bib. Citations	
MeSH	Wrongly related to: MeSH Decision Making The process of making a selective intellectual judgment when presented with several complex alternatives consisting of several variables, and usually defining a course of action or an idea.
Pubmed	189,688 citations for MeSH Decision making (first in 1952) 2,882 for "shared decision making"
Babelnet	bn:01657979n Shared decision-making is an approach where clinicians and patients communicate together using the best available evidence when faced with the task of making decisions, where patients are supported to deliberate about the possible attributes and consequences of options, to arrive at informed preferences in making a determination about the best action and which respects patient autonomy, where this is desired, ethical and legal.
DBPedia	<a href="http://dbpedia.org/page/Shared_decision_making">http://dbpedia.org/page/Shared_decision_making</a>
Q-Code	QD445
Pref. Term (PT)	Incidentaloma
French PT	Fortuitome
Spanish PT	Incidentaloma

Table 2. Continued...

Q-Code		QD440
Portuguese PT	Incidentaloma	
Definition	Incidentaloma: used to design an incidentally discovered mass, by chance, in an asymptomatic person, which probably never will harm his/her, not excluding a real possibility of damage and a few chance of benefit. It is a form of overdiagnosis emerging from the massive use of high-resolution diagnostic imaging. In many cases, it is associated with the increased rate of new diagnoses, causes anxiety, consumes time and resources, and can even induce damage by the subsequent follow-up (Mariño M, 2015).	
Bib. Citation	Mariño MA. Incidentalomas: concept, relevance and challenges for medical practice. Rev Bras Med Fam Comunidade. 2015;10(35):1053. Available at: <a href="http://dx.doi.org/10.5712/rbmfc10(35)1053">http://dx.doi.org/10.5712/rbmfc10(35)1053</a>	
MeSH	Partially related to: Incidental findings Unanticipated information discovered in the course of testing or medical care. Used in discussions of information that may have social or psychological consequences, such as when it is learned that a child's biological father is someone other than the putative father, or that a person tested for one disease or disorder has, or is at risk for, something else.	
Pubmed	926 citations for "incidentaloma" (first 1982)	
Babelnet	bn:03555265n In medicine, an incidentaloma is a tumor found by coincidence without clinical symptoms or suspicion.	
DBPedia	<a href="http://live.dbpedia.org/page/Incidentaloma">http://live.dbpedia.org/page/Incidentaloma</a>	
Q-Code		QD446
Pref. Term (PT)	Disease mongering	
French PT	Fabrication de maladie	
Spanish PT	Tráfico de enfermedades	
Portuguese PT	Comercialização de doenças	
Definition	Disease mongering is the selling of sickness that widens the boundaries of illness in order to grow markets for those who sell and deliver treatments (Moynihan et al., 2008).	
Bib. Citation	Moynihan R, Doran E, Henry D. Disease Mongering Is Now Part of the Global Health Debate PLoS Med, 2008; 5(5):e106. doi:10.1371/journal.pmed.0050106	
MeSH	None	
Pubmed	65 citations for "disease mongering" (first in 1994)	
Babelnet	bn:02354871n Disease mongering is a pejorative term for the practice of widening the diagnostic boundaries of illnesses, and promoting public awareness of such, in order to expand the markets for those who sell and deliver treatments, which may include pharmaceutical companies, physicians, and other professional or consumer organizations.	
DBPedia	<a href="http://dbpedia.org/page/Disease_mongering">http://dbpedia.org/page/Disease_mongering</a>	
Q-Code		QD447
Pref. Term (PT)	Overscreening	
Syn		
French PT	Surdépistage	
Spanish PT	Sobretamizaje	
Portuguese PT	Sobrerrastreamento	
Definition	Overscreening, also called unnecessary screening, is the performance of medical screening without a medical indication to do so. Screening is a medical test in a healthy person who is showing no symptoms of a disease and is intended to detect a disease so that a person may prepare to respond to it. Screening is indicated in people who have some threshold risk for getting a disease, but is not indicated in people who are unlikely to develop a disease. Overscreening is a type of unnecessary health care (Wikipedia).	
Bib. citations	Torke AM, Schwartz PH, Holtz LR, Montz K, Sachs GA. Older Adults and Forgoing Cancer Screening: "I Think It Would Be Strange". JAMA Intern Med. 2013;173(7):526-531. doi:10.1001/jamainternmed.2013.2903.	



Table 2. Continued...

Q-Code		QD446
MeSH	None	
Pubmed quotes #	48 citations for « overscreening » (first 1979)	
Babelnet	bn:15968011n	
Freebase	Overscreening, also called unnecessary screening, is the performance of medical screening without a medical indication to do so.	
Freebase	<a href="http://www.freebase.com/m/0113zpt0">http://www.freebase.com/m/0113zpt0</a>	
Q-Code		QD448
Pref. Term (PT)	Overtreatment	
Syn	Futile medical treatment/ Unnecessary health care/ Pharmaceuticalisation	
French PT	Surtraitement	
Spanish PT	Sobretratamiento	
Portuguese PT	Sobretratamento	
Definitions	<p>Overtreatment: an excessive drug load leading to a suboptimal risk-to-benefit ratio. Initiating treatment in conditions where it is not indicated. Use of excessively fast titration rates. Prescription of excessively high initial target dosages. Failure to consider conditions associated with reduced dosage requirements. Failure to consider the dose-response characteristics of the selected drug. Premature use of combination therapy. Failure to adjust the dosage to prevent or compensate for adverse pharmacokinetic or pharmacodynamics drug interactions. Failure to reduce drug load in patients who have not benefited from high dosages or polypharmacy. Continuation of drug therapy in disease-free patients (Peruka and Kwan, 2005).</p> <p>Futile medical treatment: treatment that is usually considered unable to produce the desired benefit either because it cannot achieve its physiological aim or because the burdens of the treatment are considered to outweigh the benefits for the particular individual. There are necessary value judgments involved in coming to an assessment of futility. These judgments must consider the individual's, or proxy's, assessment of worthwhile outcome (WHOGloss, 2004).</p> <p>Perucca E, Kwan P. Overtreatment in Epilepsy. CNS Drugs 2005;19(11):897-908. Available from: <a href="http://link.springer.com/10.2165/00023210-200519110-00001">http://link.springer.com/10.2165/00023210-200519110-00001</a></p>	
Bib. citations	<p>Williams SJ, Martin P, Gabe J. The pharmaceuticalisation of society? A framework for analysis. Social Health Illn, 2011;33(5):710-25. Available from: <a href="http://www.ncbi.nlm.nih.gov/pubmed/21371048">http://www.ncbi.nlm.nih.gov/pubmed/21371048</a> doi:10.1111/j.1467-9566.2011.01320.x.</p>	
MeSH	none	
Pubmed quotes #	2,257 citations for overtreatment » (first in 1929)	
Babelnet	bn:15974546n	
DBpedia	Unnecessary health care is health care provided with a higher volume or cost than is appropriate.	
DBpedia	<a href="http://dbpedia.org/page/Unnecessary_health_care">http://dbpedia.org/page/Unnecessary_health_care</a>	
Q-Code		QD449
Pref. Term (PT)	Overdiagnosis	
French PT	Surdiagnostic	
Spanish PT	Sobrediagnóstico	
Portuguese PT	Sobrediagnóstico	
Definition	<p>Overdiagnosis is the term used when a condition is diagnosed that would otherwise not go on to cause symptoms or death. Cancer overdiagnosis may have of one of two explanations: (1) the cancer never progresses (or, in fact, regresses); or (2) the cancer progresses slowly enough that the patient dies of other causes before the cancer becomes symptomatic. Overdiagnosis should not be confused with false-positive results, that is, a positive test in an individual who is subsequently recognized not to have cancer. By contrast, an overdiagnosed patient has a tumor that fulfills the pathological criteria for cancer (Welch and Black, 2010).</p>	
Bib. Citations	<p>Welch HG, Black WC. Overdiagnosis in cancer. J Natl Cancer Inst. 2010;102:605-13. doi: 10.1093/jnci/djq099.</p>	
MeSH	None	
Pubmed quotes	1,723 citations for « overdiagnosis » (first in 1970)	
Babelnet	bn:02698680n	
DBpedia	Overdiagnosis is the diagnosis of "disease" that will never cause symptoms or death during a patient's lifetime.	
DBpedia	<a href="http://dbpedia.org/page/Overdiagnosis">http://dbpedia.org/page/Overdiagnosis</a>	

## Results

The ten terms related to quaternary prevention are presented here in four languages with the links, definition(s) and their source(s) and bibliographic citation(s). Table 2 is completed by the corresponding MeSH, if any, with the MeSH definition, the count of the term in Pubmed (January 2015) and the date of first citation. Lastly, the links to Babelnet.org and Dbpedia are shown as the main connection to lay languages.

## Discussion

Out of an ongoing research on the conceptual content of General Practice/Family medicine, 10 terms used by GPs in their conferences' communications have been analyzed in a terminological way with the help of a web based terminological graphic user interface. The particularity of the selected terms relates to the dangers of medicine and ethical duties of family doctors facing the epidemic of overmedicalization. Each of those ten terms is carefully related to the fourth field of prevention described in this special issue on P4.

Family doctors have to understand the basis and principles of overmedicalization, which encompass overinformation, overscreening, overdiagnosis, incidentaloma, disease mongering, and overtreatment. Each of those terms could imply the surge of possible Medically Unexplained Symptoms (MUS). For instance, shared decision making is one of the suggested tools to address the discrepancy between the doctor and the patient in the chaos described by Stacey, as quoted by Pisek & Greenhalgh,<sup>21</sup> when disagreement meets uncertainty. Moreover, deprescription, more frequently referred to deprescribing, is another way to introduce quality assurance and control in the therapeutic process. In this sense, all the means dedicated to establish quaternary prevention are powerful tools to avoid the chaos and the terrible waste of resources either of human or economic, leading to a more sustainable health care by effectively implementing and maintaining of evidence-based policies and activities.<sup>22</sup>

The rules in terminological development aspire to cover the whole field of a concept and, in the meantime, they help to avoid the noise due to proxy and not exactly related issues. This refers to exhaustivity and specificity in information retrieval. *"A great difficulty is that we cannot read the user's mind to acquire what he/she really wants"* (p. 1).<sup>23</sup> This exercise shows that referring to MeSH only in information retrieval in General Practice/Family medicine can induce much noise and poor adequacy to the subject investigated. Taking the search of 'Shared decision making' as an example, we could show much noise and unfruitful search. Indeed, the term 'Shared, decision making' is linked in the MeSH thesaurus with the MeSH 'Decision making' whose use alone retrieve 123,265 entries. As the MeSH Decision making definition does not encompass the participation of the patient to the decision, the results obtained are not adequate. In this case, it is better to use the name of France Légaré,<sup>24</sup> a well-known Canadian GP, researcher in this field, as author (Légaré F[Author]) to identify the main publications relevant to the process of participation of the patient and to follow the related citations in PubMed. This will ensure narrower, but more pertinent results in a bibliographic query.

The syntagm of Medically Unexplained symptoms, although quoted 958 times for medically unexplained symptoms (first 1980) and 239 times for medically unexplained symptom (first 1987), the last one on singular, has no corresponding entry in MeSH. The word overdiagnosis counts 1,723 citations (first in 1970) in Pubmed; overtreatment 2,257 citations (first in 1929); overscreening 48 citations (first 1979); disease mongering 65 citations (first in 1994), but have no corresponding entry MeSH as well.

Overmedicalization poses different issues as we could use Conrad's definition by adding the qualifier 'ethics' to find back the ongoing meaning of the word overmedicalization. Also, its counting in Medline varies according to its orthographic typing with the European way - overmedicalisation with 'S' - reflecting more the quaternary prevention mode of the phenomenon. It is important to highlight that overmedicalization and overtreatment refer both to unnecessary health care. This broad category is coming through Babelnet quotations from Wikipedia categorization process. Indeed, the choice of Wikipedia has been to class all the above analyzed terms in the broad category of unnecessary health care.<sup>25</sup> Interestingly, all the ten terms are shared by lay terms terminologies as Babelnet of Dbpedia, reflecting the interest of patients and general public for those problems, which are clearly at the meeting point of medicine with the public.

Naturally, all those terms reflecting overutilization and waste of resources have to be complemented by the careful analysis of their counterparts: undermedicalization, undertreatment, underscreening. These are the natural companion of the analyzed terms. Unfortunately, market driven forces are prevalent, and consequently, the trend is in the direction of overmedicalization or wrong medicalization, which occurs in low-income countries, as well.

## Conclusion

It is possible to argue that the definitions proposed here are up to only one author and that careful search in published literature could retrieve more appropriate citations. Nevertheless, a lot of colleagues, acknowledged above, have contributed to this work, by spontaneous exchanges through the P4 mailing lists<sup>26</sup> between Europe and mainly South America. This is an open field of research and this paper is only a provocative appeal to invest more in specific terminological work dedicated to family medicine and primary care. Terminologies are evolutionary by essence and require to be adjusted to the need of corresponding domains of the researchers. They need also to be collaborative and this paper represents only a first step, a first call for more insights on methodological research in terminological field.

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