

# Health Technology Assessment and the Media: More Compatible than One May Think?

## L'évaluation des technologies de la santé et les médias : plus compatibles qu'on pourrait le croire?



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### Abstract

While the Health Technology Assessment (HTA) community has acknowledged the importance of public and consumer involvement in the HTA process, very few studies have examined how technology-related findings may be reported by the media to the broader public. This paper compares the content of press articles with the content of three Canadian HTA reports that respectively assess electroconvulsive therapy, first-trimester prenatal screening for

Down syndrome, and prostate-specific antigen screening for prostate cancer. We qualitatively and quantitatively analyzed 186 press articles addressing the same technologies. Our results show that beyond stylistic emphasis, there is an important overlap between media coverage of these technologies and the content of HTA reports. Findings also highlight shared interests on which both researchers and journalists could build to enhance the communication of health information to the public.

## Résumé

Alors que le milieu de l'évaluation des technologies de la santé (ETS) reconnaît l'importance du rôle du public et du consommateur dans les processus d'ETS, très peu d'études se sont penchées sur la présentation des résultats au grand public par les médias. Cette étude compare le contenu d'articles de presse avec celui de trois rapports canadiens sur l'ETS, qui évaluent respectivement l'électroconvulsivothérapie, le dépistage prénatal du syndrome de Down au premier trimestre et le test de dépistage de l'antigène prostatique spécifique pour le cancer de la prostate. Nous avons analysé qualitativement et quantitativement 186 articles de presse qui portent sur les mêmes technologies. Nos résultats montrent qu'au-delà des effets de style, il y a un important chevauchement entre la couverture des médias et le contenu des rapports. Les résultats soulignent également qu'il y a des intérêts partagés dont les chercheurs et les journalistes pourraient tirer profit afin de renforcer la communication d'information sur la santé au public.

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**T**HE RELATIONSHIP BETWEEN THE SCIENTIFIC COMMUNITY AND THE MEDIA HAS traditionally been tainted with suspicions and explicit criticism (Savoie et al. 1999). Researchers and communication experts have often accused the media of sensationalism, presenting incomplete, unbalanced and uncritical stories (Bubela and Caufield 2004; Friedman 1999; Picard 2005a; Ransohoff and Ransohoff 2001). However, Waddell and colleagues, who investigated how science journalists view their collaborations with researchers, urge the latter to develop relationships with journalists because they may “offer a constructive opportunity for policy-oriented health researchers to go beyond the promotion of single studies to convey more nuanced interpretations of bodies of research evidence in the service of improving health and healthcare” (Waddell et al. 2005: 136).

While the Health Technology Assessment (HTA) community has acknowledged the importance of public and consumer involvement in the HTA process (Coulter 2004), very few studies have examined how technology-related findings may be reported by the media to the broader public (Green et al. 2004; Savoie et al. 1999). Our study sought to compare the content of press articles with the content of HTA reports addressing the same technologies and to identify issues on which both researchers and journalists might focus to improve the communication of health information to the public.

## Methods

In the context of a broader study, we selected three HTA reports published by Ontario and Quebec agencies on topics that were controversial, covered health issues of interest to a varied audience and were likely to be reported by the press. They addressed, respectively, electroconvulsive therapy (ECT) (Banken 2002), first-trimester prenatal screening tests (PST) for Down syndrome (Framarin 2003) and prostate-specific antigen (PSA) screening tests for prostate cancer (Slaughter et al. 2002). We searched the four largest Canadian electronic databases of newspaper and magazine articles (Biblio-Branché, Repère, CPI.Q and CBCA) and extracted all articles published between 2000 and 2006, using the following keywords: electroshock (used solely as a treatment), prenatal screening tests, Down syndrome, PSA and prostate cancer. We included articles published in English and French aimed at a lay audience and excluded those targeting professional audiences. Our final sample comprised 23 articles on PST, 24 on ECT and 139 on PSA. (For the complete list of press articles included in this study, see online Appendix.)

We performed quantitative and qualitative content analyses (Davidson et al. 2003; Kroll-Smith 2003; Prior 2003). The first author read the three HTA reports and empirically identified five overarching content elements: (a) the mechanism of action, that is, how the technology works; (b) the risks associated to it; (c) its efficacy; (d) the social and ethical issues it raises; and (e) the context within which it is used. For each of these categories, the verbatim wording of the arguments contained in HTA reports was extracted. The same exercise was performed for the content of the press articles. The content analysis of press articles permitted us to identify the number and percentage of articles reporting on one or the other overarching category, as summarized in Table 1. Then, the first and second authors qualitatively compared the arguments that the press articles reported with those contained in HTA reports. Tables 2 to 4 summarize the key arguments contained in each HTA report and indicate, between brackets, the number of press articles that addressed the same arguments.

## Results

The three HTA reports themselves were not covered much in newspaper articles. While the HTA report on ECT appeared in nine out of the 24 articles, the one on PST for Down syndrome was mentioned only once and the PSA report was totally absent from the press coverage. Interestingly, however, Table 1 indicates that a varying but sizeable proportion of the newspaper articles addressed the five HTA elements. We review below the arguments that the media brought forward or downplayed within each category.

### *Electroshock therapy*

The HTA report on ECT constituted the main story of seven articles and was cited as a source in two other articles. In those cases, the content was fairly closely aligned with the report's findings (Table 2). While up to seven articles contained a description of ECT's mech-

anism of action that was almost identical to the one provided in the report, it was conveyed in other articles in a dramatized yet accurate fashion:

**TABLE 1.** Number and percentage of media articles that addressed the five HTA categories

Categories	ECT		PST for Down Syndrome		PSA Screening	
	N	%	N	%	N	%
Mechanism of action	15	63	11	48	43	31
Risks	21	88	9	39	45	32
Efficacy	13	54	10	43	88	63
Social and/or ethical issues	13	54	16	70	43	31
Context of use	11	46	16	70	81	58
Total of articles	24	100	23	100	139	100

**TABLE 2.** HTA arguments presented or omitted in media articles for ECT (n=24 articles)

Mechanism of Action	Risks	Efficacy	Social and/or Ethical Issues	Context
<p>Description of how ECT works (5/15)</p> <p>Why ECT works is still unknown (8/15)</p> <p>We understand better the conditions required to achieve therapeutic effects (0/15)</p> <p>Three explanatory theories (4/15)</p>	<p>Physical complications (3/21)</p> <p>Brain damage (5/21)</p> <p>Confusion, short- and long-term memory loss (11/21)</p> <p>Improved techniques limit consequences but more surveillance and research are needed (2/21)</p>	<p>ECT is accepted procedure for:</p> <ul style="list-style-type: none"> <li>• severe major depression (6/13);</li> <li>• patient resistant to pharmacotherapy or psychotherapy (8/13);</li> <li>• when rapid therapeutic action is required (4/13);</li> <li>• some cases of catatonia (4/13)</li> </ul> <p>Short-term treatment (3/13);</p> <p>Should be accompanied by additional pharmacotherapeutic and psychotherapeutic treatments to reduce relapse rate (2/13)</p> <p>Little evidence of efficacy for:</p> <ul style="list-style-type: none"> <li>• schizophrenia (4/13)</li> <li>• mania (5/13)</li> </ul>	<p>Coercion: HTA report explains how the ethics code of psychiatry provides a framework for preventing imposed treatments (4/13)</p> <p>Informed consent: joint decision by patient and doctor; should include continuous consent before, during and after each ECT session (4/13)</p>	<p>In Quebec, the use of ECT has grown from 4,000 to 7,200 treatments between 1988 and 1995 (6/11)</p> <p>Increase may be due to:</p> <ul style="list-style-type: none"> <li>• Greater use of ECT for certain illnesses (0/11);</li> <li>• Greater incidence of illnesses (1/11);</li> <li>• Greater number of ECT treatments per patient treated (0/11);</li> <li>• Change in billing to the provincial health insurance plan with no change in the actual rate of use (0/11)</li> </ul> <p>The level of use of ECT in Quebec is similar to that observed in other countries (1/11)</p> <p>Variations in practice are found in hospitals across Quebec (7/11)</p>

Note: The table summarizes the HTA reports' arguments (within each content category) and indicates the number of articles that addressed them.

Hartmann fasts the night before, a routine practice before general anaesthesia. ... His body is prepared for electroshock in three ways: an anaesthesiologist puts him to sleep; a chemical relaxes his muscles; a respirator helps him breathe. All these steps are taken to protect him from the physical side effects of having a seizure, which is what happens when the electrodes are attached to Hartmann's head and electricity courses into him. (Cloud 2001)

According to the HTA report, physical complications, brain damage and memory loss are associated with ECT. Although the incidence of these side effects has been reduced by improved techniques, more surveillance and research are needed. This cautious approach to the technology's risks was also found in articles related to the release of the report: "the possible risks of memory loss following electroshock treatment are reduced with the new methods for applying the electrodes on the patient's head" (Sirois 2003). By contrast, several of the remaining articles presented a less cautious view, emphasizing the memory losses associated with ECT: "we need to listen to the thousands of people who have said that electroshock therapy destroyed their life. ... it is urgent that we look at the memory loss problems caused by electroshock therapy" (La Presse canadienne 2001).

More than half of the 13 articles that discussed the efficacy of ECT emphasized, as the HTA report did, that ECT is an accepted treatment for certain conditions such as major depression or patients for whom all other treatments have failed (Ricard-Châtelain 2003). In other articles, however, the efficacy of ECT was addressed through the use of personal stories illustrating cases where the therapy had succeeded or failed. In these cases, readers were thus presented with either a very positive or a very negative picture of ECT.

While the HTA report acknowledged the social and ethical problems related to ECT and suggested solutions for addressing them (i.e., professional ethical code of conduct, informed consent), the media tended to flag the problems. Articles often turned to patient support groups, who provided testimonies of coercion with little information on how, where and why ECT was used. Moreover, several of these testimonies dated from times when the practice of ECT was different.

Elisabeth Thor-Larsen had 12 electroshock treatments in 1977 ... . At the time, she was a single mother, living with her parents ... and suffering from postpartum depression. Doctors, she says, told her parents that she wouldn't be allowed into the hospital unless they agreed to electroshock. ... "It was quite terrifying; it was really a cruel thing to do to a young woman in my situation. It is intimidation. It is not care." (McIlroy 2003)

Although findings were contextualized in both the HTA report and the newspaper articles, we observed considerable discrepancy in the information used. While articles presented clear information about the illness itself, information related to the use of the technology in the local context was often absent, incomplete or misleading. Six articles claimed that the use of ECT had

doubled in previous decades and suggested that this was cause for concern. “The Quebec government, aghast that the number of treatments in the province had almost doubled over 10 years, launched an investigation” (McIlroy 2003). Seven articles highlighted the significant variation in practice across regions. Only one article relied on data provided in the HTA report, which showed that the level of ECT use in Quebec was similar to that in other countries (Sirois 2003).

In short, there are important similarities between the HTA report and the media coverage of ECT in discussing the mechanisms of action, risks and efficacy of ECT. However, they differ significantly in the form in which the information is conveyed and how the sources are used in the treatment of social and ethical considerations. Articles that rely on the HTA report provide a more nuanced and cautious picture of ECT than the other articles.

### *First-trimester prenatal screening tests for Down syndrome*

The press articles offered a relatively accurate description of what the test entails (Table 3), but emphasis was mainly on the period when the screening tests are performed—the first trimester of pregnancy (La Presse canadienne 2003; Picard 2005b).

The risks addressed in the HTA report were almost absent from the media coverage. Rather, the emphasis was on the negative consequences of amniocentesis—that is, the possible iatrogenic loss of the foetus—the use of which could be decreased by more widespread use of first-trimester PST. The articles failed to discuss some of the limitations of PST highlighted in the HTA report, including the fairly high false-positive rates (which can generate anxiety and lead to unnecessary amniocenteses), the psychological effects of false-negative results and the fact that early screening may identify cases that would have aborted spontaneously, thereby forcing decisions that might have been avoided.

The media coverage of the test was, overall, positive about its efficacy, deviating from the HTA report. Only four articles mentioned that the rate of false positives was not reduced with the first-trimester PST (a point addressed in the HTA report). One article favourably compared first-trimester screening tests to second-trimester tests (Picard 2005b), while the HTA report stressed that it is currently impossible to conclude that one is superior to the other. Only one article discussed the lack of uniformity in results across regions, a point leading the HTA report authors to recommend restricting the use of PST.

The media emphasized that first-trimester PSTs provide women with the option of terminating their pregnancy when it is less risky, less visible and less emotionally traumatic. The articles also covered many of the social and ethical concerns raised in the HTA report, such as the need for informed consent, the lack of therapeutic alternatives, the lack of information about the severity of the disease, the possible threat to autonomy of a universal access to screening, and the social consequences for families already affected by Down syndrome. Up to 65% of the articles raised the issue of informed consent, usually by quoting representatives of patient associations:

Michael Shaw, chairman of the Canadian Down Syndrome Society, said the group does not oppose prenatal screening but is concerned about how results will be

explained to would-be mothers and what they will do with the information. ... the Society's position is that "women have the right to choose but we want them to make an informed choice." He said most Canadians—including many physicians who will be giving the results of tests—have an unduly pessimistic view of Down syndrome, and fail to recognize that the vast majority of children born with the condition live full and fulfilling lives. (Picard 2005b)

**TABLE 3.** HTA arguments presented or omitted in the media articles for PST for Down syndrome (DS) (n=23 articles)

Mechanism of Action	Risks	Efficacy	Social and/or Ethical Issues	Context
<p>Ultrasound performed between the 10th and 14th weeks of pregnancy; provides a nuchal translucency measurement (NTM), indicating high risk or not of DS (6/11)</p> <p>Amniocentesis used to diagnose DS is performed between the 15th and 19th week of pregnancy; is a standard second-trimester prenatal diagnostic procedure (7/11)</p>	<p>False positives may be a source of anxiety and lead to unnecessary amniocentesis that can cause iatrogenic loss (1/9)</p> <p>False negatives may have psychological effects on parents (0/9)</p> <p>Early screening may identify cases that would have aborted spontaneously; difficult decisions could have been avoided (0/9)</p> <p>Various risks associated with amniocentesis (2/9)</p> <ul style="list-style-type: none"> <li>• Foetal loss (7/9);</li> <li>• Risk of foetal injury or loss increases when amniocentesis is performed earlier in the pregnancy (0/9)</li> </ul>	<p>Detection rate for NTM is 70%–100% when combined with maternal age and blood markers (9/10)</p> <p>NTM does not reduce the rate of false positives (4/10)</p> <p>Results are not uniform across regions or hospitals (1/10)</p> <p>Impossible to state whether first-trimester or second-trimester screening is superior in terms of efficacy (1/10)</p>	<p>No therapeutic alternative to PST for detecting DS (4/16)</p> <p>Earlier PST enables terminating pregnancy when it is less risky, less visible and emotionally less traumatic (6/16)</p> <p>Gives parents more time to prepare for a DS child (1/16)</p> <p>May lead to a reduction in the use of amniocentesis (4/16)</p> <p>Diagnosis does not provide information about the degree of mental retardation and the presence of organic malformations (3/16)</p> <p>Universal access to screening could violate the principle of autonomy (6/16)</p> <p>Systematic offer of screening would permit equal access (0/16)</p> <p>PST may reduce the costs associated with managing handicapped individuals (0/16)</p> <p>Informed consent (15/16)</p> <p>May increase negative attitudes towards individuals with DS (1/16)</p> <p>May lead to a reduction in funding and support services for them (3/16)</p>	<p>The clinical presentation of DS varies although phenotype is characteristic and always accompanied by certain amount of mental retardation (11/16)</p> <p>Incidence in the population is 1.3/1,000 live births and increases with maternal age (10/16)</p> <p>Most affected children are born to mothers under 35 because there are fewer deliveries after this age (3/16)</p> <p>In Quebec, pregnant women aged 35 and older are offered amniocentesis for diagnosing DS (6/16)</p> <p>In Quebec, first-trimester PST for DS is becoming widespread, but no clear standards and quality control mechanisms (0/16)</p> <p>In Quebec, a first-trimester PST would be based on amniocentesis for high-risk cases; but women do not receive the results before the 16th week of pregnancy (0/16)</p>

Note: The table summarizes the HTA reports' arguments (within each content category) and indicates the number of articles that addressed them.

The incidence of Down syndrome within the population, its link to maternal age and the phenotypic characteristics that characterize the syndrome were conveyed in the majority of articles. However, the limitations and problems associated with the real-world use of PST for Down syndrome were not discussed, including the absence of clear standards and quality-control mechanisms, and the need to use amniocentesis for high-risk cases. Because amniocentesis carries a greater risk when performed before the 14th week, and since the analysis can be expected to take an average of 14 days, a pregnant woman would not receive her results until at least the 16th week of pregnancy (in the second trimester). Such contextual issues were not addressed in the articles.

Thus, the media coverage of PST for Down syndrome tended to overemphasize the benefits and underplay the risks. It contained no information on geographical variations in the use of the technology. Nevertheless, several of the social and ethical considerations addressed in the HTA report were conveyed in the media.

#### *Prostate-specific antigen screening test*

The articles usually described how PSA works in general terms; readers learn that this blood test detects prostate-specific antigens and that a high level of the antigen may be an indicator of cancer (Table 4). A few articles discussed how PSA velocity (i.e., the rate of change in PSA levels over a period of time) may potentially prove a better indicator of cancer aggressiveness (Johnson 2004).

Half of the articles that addressed risks explained that the test detects some cases where cancer is not necessarily life-threatening and so exposes men to unnecessary and risky treatments: “Many men over 60 are receiving unnecessary surgery and other treatments for prostate cancer even though the disease is unlikely to progress far enough to cause health problems” (Associated Press 2002). Emphasis was also placed on the high rates of false positives that lead to more invasive and unnecessary biopsies.

Central to the HTA report on PSA screening was the argument that no randomized trial has yet demonstrated an effect on mortality. However, the report also mentioned a few non-randomized studies that may suggest a link between PSA screening and a decrease in prostate cancer mortality, a point underlined in its recommendations: “The biological rationale for PSA screening is reasonably strong, and the decrease in prostate cancer mortality shortly after PSA screening was introduced is intriguing. ... it could be argued that a PSA screening test should be paid for if men are fully informed about its potential benefits and risks” (Slaughter et al. 2002: iv). The media articles presented the second argument twice as often as the first one. In addition, 14 articles claimed that PSA screening is the most efficient method currently available for the early detection of cancer, implicitly conveying the message that it reduces mortality.

The focus of the HTA report was whether or not a population-based screening program for prostate cancer should be implemented in Ontario. The report concluded against such a program and proposed two options: (a) the status quo, which consists of not covering PSA screening for asymptomatic men, or (b) providing PSA screening at the request of the patient and after obtaining informed consent. Here too, the media emphasized one option more than the other:

14 of 43 articles presented arguments in favour of the status quo, while 33 of 43 aligned themselves with the second option, reporting the position of the Canadian Urological Association and the Canadian Cancer Society: “Men over the age of 50 years [should] discuss with their doctor the potential benefits and risks of early detection of prostate cancer using the ... [PSA] test ... so that they can make informed decisions about the use of these tests” (Associated Press 2004).

**TABLE 4.** HTA arguments presented or omitted in the media articles for PSA (n= 139 articles)

Mechanism of Action	Risks	Efficacy	Social and/or Ethical Issues	Context
<p>Blood test detects the prostate-specific antigen (23/43)</p> <p>4.0 µg/mL is the upper limit of normal; up to 20% of men with prostate cancer (PC) have a lower value. Only 25% of men with a PSA of 4–10 µg/mL will have a positive biopsy (13/43)</p> <p>Description of various causes of elevated PSA including benign prostatic hyperplasia (BPH) (4/43)</p> <p>PSA velocity is a 20% increase of PSA within one year and is a better predictor of PC than BPH (9/43)</p> <p>Free-to-total PSA ratio testing is used to help distinguish between BPH and PC, and to decrease the need for biopsy (3/43)</p>	<p>Asymptomatic men are exposed to a substantial risk of morbidity when they undergo treatment such as urinary incontinence and erectile dysfunction (24/45)</p> <p>High rates of false positives lead to more invasive testing (9/45)</p> <p>High rates of false negatives leave potentially aggressive cancers uncovered (3/45)</p>	<p>No randomized trial has yet demonstrated an effect of PSA screening on mortality (27/88)</p> <p>Non-randomized studies suggest PSA screening may be linked to a decrease in prostate cancer mortality (44/88)</p> <p>Poor sensitivity and specificity of PSA in differentiating benign and aggressive tumours (16/88)</p> <p>Sensitivity varies from 72%–90% and the specificity varies from 59%–98% (16/88)</p>	<p>Against population-based PSA screening of asymptomatic men:</p> <ul style="list-style-type: none"> <li>• suggest continuing with the status quo (14/43)</li> <li>• or providing PSA testing on request, with informed consent (33/43)</li> </ul> <p>Summarizes the position of the CUA, NCI and CCS (33/43)</p>	<p>Early detection of cancer has been the message for the public for decades (2/81)</p> <p>1/8 men will have the disease during their lifetime (59/81)</p> <p>1/30 men will die of it (54/81)</p>

Note: The table summarizes the HTA reports’ arguments (within each content category) and indicates the number of articles that addressed them.

The articles provided detailed information about the illness itself, but very little information about the use of the test and the local context. Contrary to the two other cases, information on the latter aspect was also limited in the HTA report.

In short, the media coverage of the mechanisms of action of PSA screening and its risks was closely aligned with the information provided in the HTA report. However, some messages were more significantly emphasized and, as a result, important nuances were ignored.

### Building on Shared Interests

The three cases we examined offer contrasting illustrations of the way the media reports issues related to health technology to the broader public. While our observations cannot be generalized beyond the three specific topics we have examined, our findings suggest that even though press articles use stylistic effects that may contribute to researchers’ discomfort with the media,

their stories adopt a rationality that is, overall, compatible with HTA. Although we focused on controversial technologies, we found that the print media seek to convey how a technology works, how effective it is and for whom, and what the associated risks and benefits are. They also address social and ethical considerations, but mainly through testimonies offered by associations of patients or lay individuals (Weigold 2001). In step with the recommendation of Waddell and colleagues (2005), we suggest three domains on which both researchers and journalists could focus to improve the communication of health information to the public.

First, one of the criticisms aimed at the media is their neglect of historical context, “failing to indicate whether a new study departs from or extends prior research” (Friedman 1999: 26). According to Rogers (1999), this lack of information about the context within which new findings develop inhibits the public’s understanding of science. Improved communication with HTA producers could fill this gap because, by providing systematic reviews on a host of health interventions, they are well positioned to clarify the scientific and clinical contexts within which technologies evolve.

Second, our findings show that depending on the health innovation being covered, social and ethical considerations may not be addressed fully in the media. Furthermore, these considerations are usually mentioned by associations of patients or lay individuals, whose role is often limited to flagging or illustrating the problems (Weigold 2001). HTA producers could play a role in *increasing the public’s understanding of social and ethical considerations* by helping the media situate health innovations within their social context.

Finally, while the media are effective at providing general information about illnesses, they are less thorough in their coverage of the healthcare context within which health innovations are used. For instance, the public reads about new possibilities in prenatal screening without any qualification that their added value may be limited in Quebec. They read about an increase in the use of ECT without understanding whether this should be seen as under- or overuse. These missing pieces of information were available in the HTA reports and could have contributed to a *better public understanding of the policy issues*.

## Conclusion

Because the media are key players in the transfer of information to the public, examining how journalists report on health issues increasingly matters (Coulter 2004). Researchers in HTA agencies are well positioned to convey “more nuanced interpretations of bodies of evidence” (Waddell et al. 2005: 136) because they work on a variety of health technologies and synthesize findings from several studies. Hence, they can independently address a crucial gap that inhibits the public’s understanding of health innovation: the lack of a contextualized analysis of the policy issues at play. Increased communication between researchers and journalists may generate long-term “knowledge benefits” for the public.

Within this perspective, this paper has identified shared interests on which both researchers and journalists might build to enhance the communication of health information to the public.

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# Health Technology Assessment and the Media: More Compatible than One May Think?

## L'évaluation des technologies de la santé et les médias : plus compatibles qu'on pourrait le croire?

MYRIAM HIVON, PASCALE LEHOUX, MELANIE ROCK AND JEAN-LOUIS DENIS

### Appendix

List of the press articles included in the study

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