CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Cytisine for Smoking Cessation: Clinical Effectiveness and Cost-Effectiveness
Authors: Kelsey Seal, Eldiflor Felipe


Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners’ own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein are those of CADTH and do not necessarily represent the views of Canada’s federal, provincial, or territorial governments or any third party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user’s own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian Copyright Act and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada’s health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada’s federal, provincial, and territorial governments, with the exception of Quebec.
Research Questions

1. What is the clinical effectiveness of cytisine for the treatment of smoking cessation?
2. What is the cost-effectiveness of cytisine for the treatment of smoking cessation?

Key Findings

One health technology assessment, four systematic reviews (including two with meta-analyses and one with an economic evaluation), and two randomized controlled trials were identified regarding the clinical effectiveness of cytisine for the treatment of smoking cessation.

Methods

A limited literature search was conducted on key resources including PubMed, The Cochrane Library, University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2007 and August 29, 2017. Internet links were provided where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

<table>
<thead>
<tr>
<th>Population / Intervention</th>
<th>Individuals of any age who smoke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cytisine</td>
<td></td>
</tr>
<tr>
<td>Comparators</td>
<td>Q1-2: Nicotine replacement therapy (NRT) – any form; Varenicline; Bupropion; Placebo</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Q1: Clinical effectiveness (e.g., reduction in smoking, improved quality of life) and safety (patient harms and benefits)</td>
</tr>
<tr>
<td></td>
<td>Q2: Cost-effectiveness (e.g., cost per QALY increase, cost per benefit)</td>
</tr>
<tr>
<td>Study Designs</td>
<td>Health technology assessment, systematic reviews, meta-analyses, randomized controlled trials, non-randomized studies, economic evaluations</td>
</tr>
</tbody>
</table>
Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and economic evaluations.

One health technology assessment, four systematic reviews (including two with meta-analyses and one with an economic evaluation), and two randomized controlled trials were identified regarding the clinical effectiveness of cytisine for the treatment of smoking cessation.

Additional references of potential interest are provided in the appendix.

Overall Summary of Findings

One health technology assessment, four systematic reviews (SR)\(^\text{2-5}\) (including two with meta-analyses\(^\text{4-5}\) and one with an economic evaluation\(^\text{3}\)), and two randomized controlled trials\(^\text{6-7}\) were identified regarding the clinical effectiveness of cytisine for the treatment of smoking cessation.

The health technology assessment\(^\text{1}\) concluded that there is limited evidence on cytisine and its effectiveness as an aid to smoking cessation. One SR\(^\text{2}\) reported that cytisine increased the chances of quitting, but absolute quit rates were modest in recent trials. One SR\(^\text{3}\) and one randomized controlled trial\(^\text{7}\) concluded that cytisine was more effective than placebo as an aid in smoking cessation. Another SR\(^\text{4}\) reported that cytisine improved the chances of smoking cessation. The final identified SR\(^\text{5}\) concluded that cytisine was an effective treatment for smoking cessation and was comparable in efficacy to other licensed treatments. The other identified randomized controlled trial\(^\text{6}\) reported that, when cytisine was combined with behavioural support, it was superior to nicotine-replacement therapy in smoking cessation; however, it had more self-reported adverse events. The SR with economic evaluation\(^\text{3}\) concluded that cytisine was anticipated to dominate varenicline, in that it produced more quality-adjusted life-years at a lower associated cost.

References Summarized

Health Technology Assessments

   See: Results, page 34;
   Authors’ Conclusions, sixth bullet, page 35

Systematic Reviews and Meta-analyses

9;(5):CD006103.
PubMed: PM27158893

PubMed: PM24831822

PubMed: PM23728690

PubMed: PM23404838

Randomized Controlled Trials

PubMed: PM25517706

PubMed: PM21991893

Non-Randomized Studies

No literature identified.

Economic Evaluations

No literature identified.
Appendix — Further Information

Review Articles


Additional References