VALUE IN HEALTH ▮ (2016) ▮▮▮–▮▮▮

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jval

Health Technology Assessment (HTA) Case Studies: Factors Influencing Divergent HTA Reimbursement Recommendations in Australia, Canada, England, and Scotland

Nicola Allen, MPharm, PhD[1,2], *Stuart R. Walker, BSc, PhD, MFPM, FRSC, FIBiol, FRCPath*[1,2], *Lawrence Liberti, MSc, RPh, RAC*[2], *Sam Salek, RPh, PhD, FFPM, MRPSGB, MCMS, FESCP*[3,4,*]

[1]*School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Cardiff, UK;* [2]*Centre for Innovation in Regulatory Science, London, UK;* [3]*Department of Pharmacy, Pharmacology and Postgraduate Medicine, School of Life and Medical Sciences, University of Hertfordshire, Hatfield, UK;* [4]*Institute for Medicines Development, Cardiff, UK*

ABSTRACT

Objectives: To evaluate the national regulatory, health technology assessment (HTA), and reimbursement pathways for public health care in Australia, Canada, England, and Scotland, to compare initial Canadian national HTA recommendations with the initial decisions of the other HTA agencies, and to identify factors for differing national HTA recommendations between the four HTA agencies. **Methods:** Information from the public domain was used to develop a regulatory process map for each jurisdiction and to compare the HTA agencies' reimbursement recommendations. Medicines that were reviewed by all four agencies and received a negative recommendation from only one agency were selected as case studies. **Results:** All four countries have a national HTA agency. Their reimbursement recommendations are guided by both clinical efficacy and cost-effectiveness, and the necessity for patient input. Their activities, however, vary because of different mandates and their unique political, social, and population needs. All have an implicit or explicit quality-adjusted life-year threshold. The seven divergent case studies demonstrate examples in which new medicine-indication pairs have been rejected because of uncertainties surrounding a range of factors including cost-effectiveness, comparator choice, clinical benefit, safety, trial design, and submission timing. **Conclusions:** The four HTA agencies selected for inclusion in this study share common factors, including a focus on clinical efficacy and cost-effectiveness in their decision-making processes. The differences in recommendations could be considered to be due to an individual agency's approach to risk perception, and the comparator choice used in clinical and cost-effectiveness studies.

Keywords: Australia, Canada, divergent recommendations, England, health technology assessment, Scotland.

Introduction

The growing availability of less expensive generics plus the rising costs of new medicines and limited health care budgets increase the need for rationalized allocation of public resources [1,2]. As a result, most public health providers require manufacturers to demonstrate the benefits of their new drug technology over existing treatments before reimbursement approval. The evaluations of treatments to guide health policy and reimbursement decisions are usually performed by health technology assessment (HTA) agencies. Generally, HTA agencies will evaluate the therapeutic value and cost-effectiveness of a health technology. The scope and methodologies used to conduct HTA can, however, vary greatly among agencies, because affordability and social and political factors are unique to each coverage population [3].

This study focuses on the HTA environments in Australia, Canada, England, and Scotland, because these four nations have an entwined history and share a common liberal, basic security welfare state ideology [4,5]. The study objectives were therefore to evaluate the national regulatory, HTA, and reimbursement pathways for public health care in the four regions to compare initial Canadian national HTA recommendations from January 2009 to May 2013 with the initial HTA decisions to identify factors for these differing national HTA recommendations.

Methods

Information for regulatory approval and HTA reimbursement recommendations was collected from the public domain directly

* *Address correspondence to:* Sam Salek, Department of Pharmacy, School of Life and Medical Sciences, University of Hertfordshire, College Lane, Hatfield, Hertfordshire AL10 9AB, UK.
E-mail: mssalek@gmail.com.

1098-3015$36.00 – see front matter

http://dx.doi.org/10.1016/j.jval.2016.10.014

from the Web sites of the European Medicines Agency (EMA) [6], the Canadian Agency for Drugs and Technologies in Health (CADTH) [7], Health Canada [8], the National Institute for Care and Health Excellence (NICE) in England [9], the Pharmaceutical Benefits Advisory Committee (PBAC) of the Pharmaceutical Benefits Scheme in Australia [10,11], the Scottish Medicines Consortium (SMC) [12–14], and the Therapeutic Goods Administration (TGA) in Australia [15]. This information facilitated the development of a process map for each jurisdiction using a previously developed mapping methodology [16]. These maps enabled the identification and relationships between the HTA agencies and the body responsible for the final reimbursement decision. Regulatory approval dates were identified from the regulatory authorities' online databases [6,8,15].

The CADTH Common Drug Review (CDR) program was selected as the primary agency for this study to complement a previous study evaluating the impact of CDR recommendations on provincial listing decisions [17]. A CDR listing recommendation issued from January 2009 to May 2013 was a criterion for the inclusion of a drug product in this study. New indication submissions were also included if the initial submission met the inclusion criteria. The proprietary name, generic name, indication, and recommendation were recorded from the online CDR database [7]. The corresponding HTA agency recommendations for Australia, England, and Scotland were identified by generic name and indication. Medicines marketed under a different brand name for the Australian or European market were included, provided they were listed for the same indications as the initial CDR recommendation. When an agency reviewed indications separately or issued different recommendations per indication within a single review, this was recorded as a medicine-indication pair for all four agencies. The first and latest recommendations issued up to September 2016 were recorded for all medicine-indication pairs across agencies and classified as either positive or negative recommendations. All recommendations to reimburse a medicine (with or without restrictions) were classified as positive recommendations and recommendations to not reimburse to any population were considered negative. Recommendations with restrictions have been combined with unrestricted recommendations because of the difficulty of actively comparing restrictions across agencies [18].

Statistical Analysis

HTA recommendations classified as positive or negative were numerically coded to calculate the quantity of concordant recommendations for each medicine between jurisdictional pairs. Not all HTA agencies will have reviewed the same medicines. Thus, reporting the total number of concordant recommendations alone could be misleading, and therefore the percentage agreement was calculated between jurisdiction pairs to report the proportion of concordant recommendations.

The 95% confidence interval (CI) was also calculated for each recommendation classification using the Wilson score method. This method was chosen because it is suitable for small n values and will not produce CIs with negative or larger than 100% value [19].

Results

HTA Processes in Australia, Canada, England, and Scotland

These four health care systems include a national HTA body to assess the added therapeutic value and cost-effectiveness of new medicines. There are, however, key differences between the mandates and processes of these agencies that should be considered when comparing their HTA recommendations. For example, Canada is the only region assessed in this study that has two national HTA programs: the pan-Canadian Oncology Drug Review for the assessment of oncology medicines and the CDR for the assessment of new medicines and indications (Fig. 1). Because this study was looking at reviews from only the CADTH CDR program, no oncology products were included in this research.

In the United Kingdom, the SMC reviews all new medicines to provide a reimbursement recommendation to the National Health Service (NHS) Scotland, but in England, NICE reviews only significant new medicines and indications that have a formal request for review from the Secretary of State for Health (Fig. 2). Therefore, the number of medicines with a recommendation issued by NICE will be much lower compared with the other three agencies.

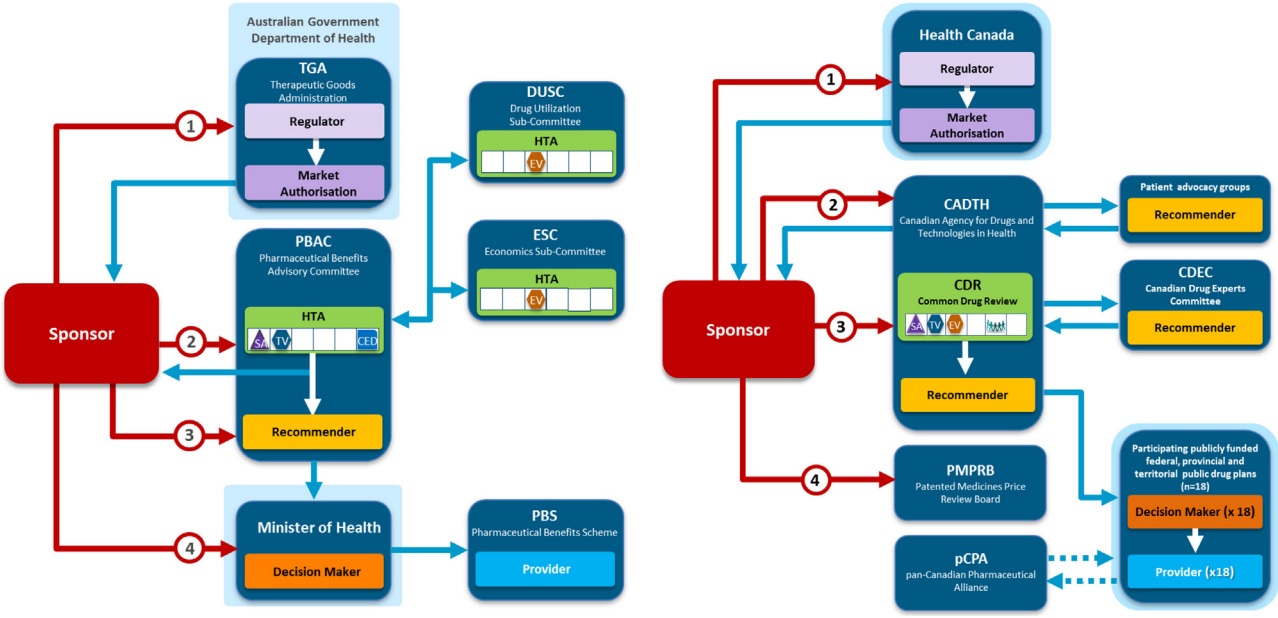

Fig. 1 – Process maps for Australia and Canada (Common Drug Review). HTA, health technology assessment.