

Aspartate Aminotransferase Testing in Community-Based Laboratories: An Expert Consultation

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June 2013

Suggested Citation

This report should be cited as follows:

McCurdy B. Aspartate aminotransferase testing in community-based laboratories: an expert consultation. Toronto, ON: Health Quality Ontario; 2013 June. 11 p. Available from: <http://www.hqontario.ca/evidence/publications-and-ohtac-recommendations/expert-consultations>.

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Based on the research conducted by Health Quality Ontario and its partners, the Ontario Health Technology Advisory Committee (OHTAC)—a standing advisory subcommittee of the Health Quality Ontario Board—makes recommendations about the uptake, diffusion, distribution, or removal of health interventions to Ontario's Ministry of Health and Long-Term Care, clinicians, health system leaders, and policy makers.

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Background

Overuse, underuse, and misuse of interventions are important concerns in health care and lead to individuals receiving unnecessary or inappropriate care. In April 2012, under the guidance of the Ontario Health Technology Advisory Committee's Appropriateness Working Group, Health Quality Ontario (HQO) launched its Appropriateness Initiative. The objective of this initiative is to develop a systematic framework for the ongoing identification, prioritization, and assessment of health interventions in Ontario for which there is possible misuse, overuse, or underuse.

For more information on HQO's Appropriateness Initiative, visit our website at www.hqontario.ca.

Objective of Analysis

The objective of this analysis is to determine the clinical utility of aspartate aminotransferase (AST) testing in community-based laboratories.

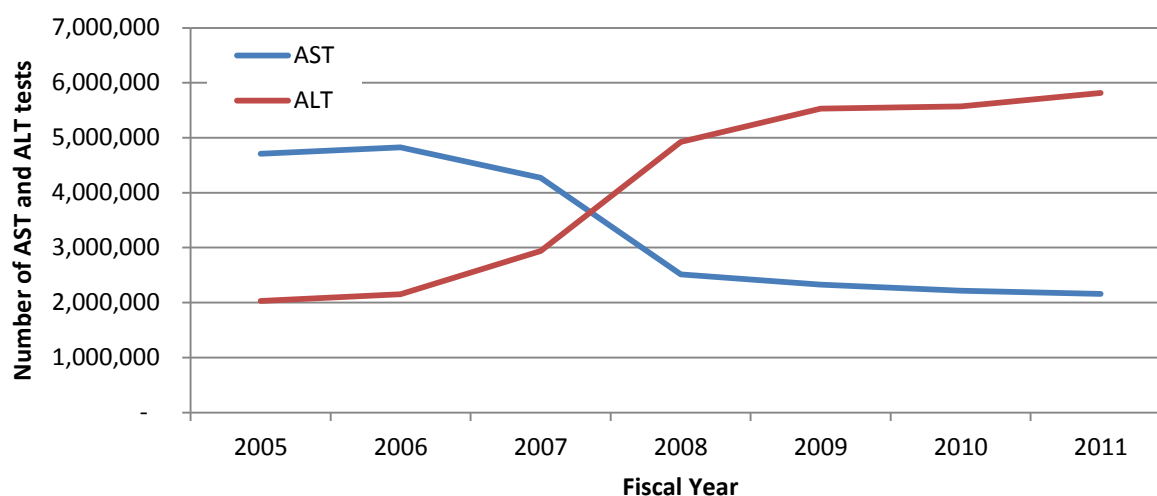
Clinical Need and Target Population

Aspartate aminotransferase is an enzyme found in a number of organs and tissues in the body, including the liver, heart, and muscle cells. AST can be measured in the blood stream when one of these organs or tissues is damaged. AST is often used to diagnose or monitor liver damage; however, since it is present in a number of other tissues, it is a relatively non-specific test. There are a number of other liver function tests. One of these tests, alanine aminotransferase (ALT), is more specific than AST.

Ontario Context

As shown in Figure 1, between the 2005/2006 and 2010/2011 fiscal years, the number of AST tests performed in Ontario community laboratories dropped substantially—from 4,711,135 to 2,155,220. This was likely caused by the fact that, in August 2007, AST was replaced on the Ontario laboratory requisition form by ALT.

Figure 1: Aspartate Aminotransferase Tests in Ontario Community Laboratories by Fiscal Year



Abbreviations: ALT, alanine aminotransferase; AST, aspartate aminotransferase

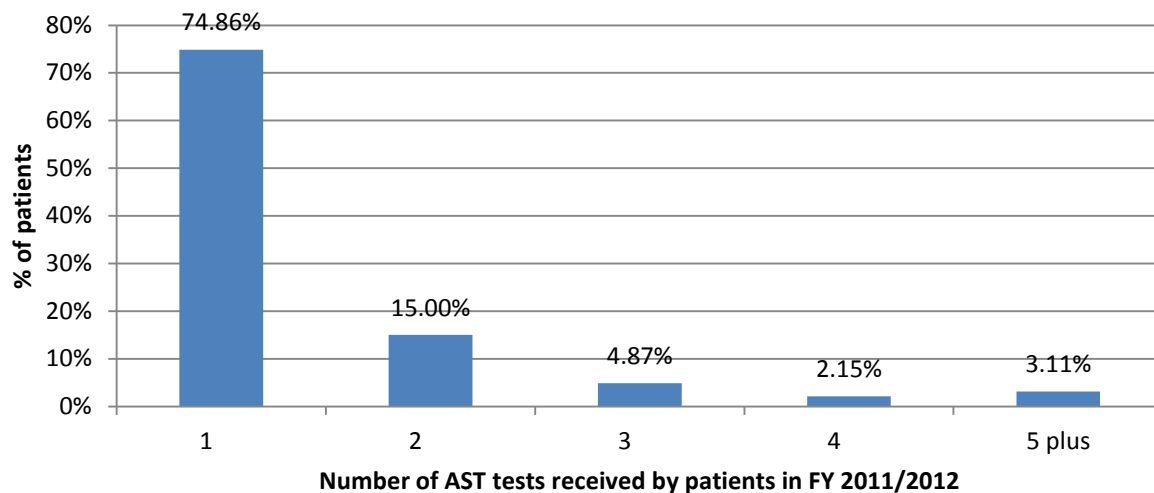
Data are based on health care provider claims (excluding out-of-province, out-of-country, and Work Place Safety and Insurance Board claims) in community labs using the Ontario *Laboratory Schedule of Benefits* fee code L222A (AST) and L223A (ALT). Fiscal service year was defined as having a service date between ccyy-04-01 and ccyy-03-31, assessed to ccyy-09-30 (M7). For example fiscal service year was defined as having a service date between 2003-04-01 and 2004-03-31, assessed to 2004-09-30. The exception is fiscal service year 2011. It is assessed to 2012-06-30 (M4). Data for fiscal year 2011/2012 may not be complete.

In fiscal year 2011/2012, the top 5 medical specialties that ordered AST tests in community laboratories were:

- Family and general practice(69%)
- Internal medicine(10.1%)
- Rheumatology(5.8%)
- Gastroenterology(2.8%)
- Nurse practitioners(2.5%)

In fiscal year 2011/2012 patients received an average of 1.52 tests (range, 1–71). The breakdown of the amount of repeat testing occurring during this time period is shown in Figure 2.

Figure 2: Frequency of Repeat Aspartate Aminotransferase Testing Conducted in Ontario Community Laboratories in Fiscal Year 2011/2012



Data are based on Health care provider claims (excluding out-of-province, out-of-country, and Work Place Safety and Insurance Board claims) in community labs using the Ontario *Laboratory Schedule of Benefits* fee code L222A (AST) and L223A (ALT). Fiscal service year was defined as having a service date between ccyy-04-01 and ccyy-03-31, assessed to ccyy-09-30 (M7). For example fiscal service year was defined as having a service date between 2003-04-01 and 2004-03-31, assessed to 2004-09-30. The exception is fiscal service year 2011, it is assessed to 2012-06-30 (M4). Data for fiscal year 2011/2012 may not be complete. Ontario registered physicians specialties are allocated based on the physician billing pattern for the applicable fiscal service year. For other health care providers, the practicing specialty allocated to the claim submission number as of the last day of each fiscal year was used.

Expert Consultation

Research Question

What is the clinical utility of AST testing in community-based laboratories?

Research Methods

Expert Opinion

In August 2012, experts were identified to provide advice on the appropriate use of AST testing in the Ontario health care setting. However, the statements, conclusions, and views expressed in this report do not necessarily represent the views of all experts.

Findings

Several Ontario experts were consulted, including family physicians, a hepatologist, and a hematologist. The experts agreed that the AST/ALT ratio can, in some cases, provide important information to help differentiate between types of liver damage, in particular when determining if the damage is alcohol related. However, the experts felt that ALT, the more specific liver test, should be the primary test used in community-based laboratories with access through hospitals to those specialists who require the additional information that AST may provide.

Conclusions

Based on the Ontario utilization data and expert consultations, there is inappropriate AST testing occurring in community laboratories in Ontario. Given the lack of specificity of AST compared to ALT, AST tests have limited utility in the community setting and testing should be restricted.

Acknowledgements

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