MSAC application 1827

Testing for hepatitis B virus (HBV) and hepatitis B virus surface antigen (HBsAg) to support the use of PBS subsidised bepirovirsen in people with chronic hepatitis B (CHB)

Application for MBS eligible service or health technology

HPP Application number:

HPP200413

Application title:

CHB testing regimen (HBsAg and HBV DNA)

Submitting organisation:

GLAXOSMITHKLINE AUSTRALIA PTY LTD

Submitting organisation ABN:

47100162481

Application description

Succinct description of the medical condition/s:

Chronic hepatitis B (CHB) is a long-term infection of the liver caused by the hepatitis B virus (HBV), usually acquired through blood or bodily fluids (for example, from mother to baby at birth, unprotected sex, or sharing needles). It often runs a slow course over many years and may cause ongoing liver inflammation that can eventually lead to cirrhosis, liver failure, or liver cancer in a significant minority of people. Effective antiviral treatments can suppress the virus and reduce the risk of complications, and a safe vaccine prevents HBV infection.
Functional cure of CHB, is defined as sustained hepatitis B surface antigen loss and undetectable hepatitis B viral DNA following a patient being 24 weeks off-treatment.

Succinct description of the service or health technology:

HBV DNA PCR testing: Hepatitis B virus (HBV) deoxyribonucleic acid (DNA) polymerase chain reaction (PCR) is a blood test that detects and measures how much hepatitis B virus is in the bloodstream (viral load). It helps clinicians decide when to start or change antiviral treatment and to monitor response — falling to undetectable shows good suppression, but does not mean the infection is cured.

Qualitative Hepatitis B surface antigen testing (HBsAg): A simple blood test that tells if the hepatitis B surface antigen is present (yes/no); a positive result means current infection.
Quantitative Hepatitis B surface antigen testing (qHBsAg): A blood test that measures

how much surface antigen is in the blood (IU/mL); used to track disease phase and treatment response over time but does not replace HBV DNA testing.

Both quantitative HBsAg and quantitative HBV DNA testing will be necessary to determine functional cure in chronic hepatitis B.

Application contact details

Are you the applicant, or are you a consultant or lobbyist acting on behalf of the applicant?

Applicant

Are you applying on behalf of an organisation, or as an individual?

Organisation

Applicant organisation name:

GLAXOSMITHKLINE AUSTRALIA PTY LTD

Application details

Does the implementation of your service or health technology rely on a new listing on the Pharmaceutical Benefits Scheme (PBS) and/or the Prescribed List?

Yes

Which list/schedule will the other health technologies be listed on?

Pharmaceutical Benefits Scheme

Is the application for a new service or health technology, or an amendment to an existing listed service or health technology?

Amendment

What is the nature of the amendment?

Amendment to the item descriptor that does not affect how the service is delivered

Justification for amendment:

The relevant laboratory tests are all currently funded by the MBS under Items 69475, 69478, 69481, 69484, 69482 and 69483. However, unclear whether the descriptors for these items will be appropriate and/or sufficient to accommodate the revised

testing algorithm required for use alongside curative treatment regimens such as bepirovirsen.
While details are still being finalised, the initially proposed TGA indication and PBS restriction for bepirovirsen will likely be for finite treatment of CHB in patients already on stable NA therapy, with HBsAg levels ≤ 3,000 IU/mL
Based on pre-submission consultation with the Department of Health and Ageing (DOHA), the applicant understands that assessment of qHBsAg (and HBeAg) for the purposes of determining eligibility for bepirovirsen, and monitoring outcomes both during and beyond treatment, will likely fall within the scope of current MBS Item 69481, in which case no changes to that item or descriptor are expected to be required in order to support the proposed intervention. The applicant further understands that the recommended assessments of HBV DNA prior to and during treatment with bepirovirsen will fall within the scope of the current MBS Item 69483. However, DOHA has led the applicant to understand that the descriptors for MBS Items 69482 and 69483 are not likely to permit regular ongoing HBV DNA assessment in functionally cured (HBsAg negative) patients no longer receiving antiviral therapy after successful treatment with bepirovirsen, at the proposed (or any other) frequency. Indeed, these descriptors currently do not technically support the recommended SOC testing schedule for (rare) instances of functionally curative treatment outcomes with NA's and/or pegylated interferon.

Relevant MBS items

Please select any relevant MBS items.

MBS item number	Selected reason type
69481	Prerequisite item
69482	Expansion or amendment to existing item
69483	Expansion or amendment to existing item

What is the type of service or health technology?

Investigative

Please select the type of investigative health technology:

Molecular diagnostic tests

Please select the type of molecular diagnostics health technology

Other genetic test

PICO sets

Application PICO sets:

PICO set name
Chronic Hep B - HBV DNA and HBsAg testing for patient selection and monitoring

State the purpose(s) of the health technology for this PICO set and provide a rationale:

Purpose category:

Diagnosis / sub-classification

Purpose description:

To establish a diagnosis or disease (sub)classification in symptomatic or affected patients

Purpose category:

Outcome / response assessment

Purpose description:

To assess an outcome or response following an intervention or treatment

Purpose category:

Monitoring

Purpose description:

To monitor a condition over time

Rationale:

The proposed health technology is a new CHB testing algorithm comprised of established laboratory tests for HBsAG (quantitative and qualitative) and HBV DNA, that supports a prospectively curative course of treatment with bepirovirsen. However, existing treatment options including NA therapy and pegylated interferon can occasionally achieve functional cure. Current MBS items do not cater for ongoing monitoring of HBV DNA for relapse. The proposed intervention would also cover this instance. Additionally, future prospectively curative treatments will require similar testing and monitoring as proposed.

Population

Describe the population in which the proposed health technology is intended to be used:

There are two proposed target populations for testings:

1. Target population patients for treatment initiation and response monitoring
2. Target population for ongoing monitoring (post-treatment) for functionally cured patients

Population 1 – CHB patients for treatment initiation and response monitoring
The initial target population for the proposed intervention is patients with CHB receiving stable therapy with a nucleos(t)ide analogue (NA) who are being assessed for eligibility to receive a prospectively curative treatment regimen of bepirovirsen. However, this narrows over the time to patients who are deemed eligible for and receive treatment with bepirovirsen. Those receiving the finite treatment course require monitoring for response as part of the proposed intervention.
Current MBS items for qualitative and/or quantitative assessment of hepatitis B surface antigen (HBsAg) testing (MBS item 69481) and HBV DNA testing (69483) adequately support the proposed intervention relating to Population 1.
Population 2 – CHB patients (subset of Population 1) achieving functional cure requiring ongoing monitoring
The target population is those CHB patients who achieve a functionally curative outcome as a result of treatment with bepirovirsen (or any another agent) and have ceased NA therapy .
Population 2 is where clarification is being sought in this application with respect to the adequacy of current MBS items for the HBV DNA testing component of the intervention.

Select the most applicable Medical condition terminology (SNOMED CT):

Chronic type B viral hepatitis

Intervention

Name of the proposed health technology:

New CHB testing algorithm (qHBsAG and HBV DNA testing) that supports a prospectively functionally-curative course of treatment with bepirovirsen

Comparator

Nominate the appropriate comparator(s) for the proposed medical service (i.e. how is the proposed population currently managed in the absence of the proposed medical service being available in the Australian health care system). This includes identifying health care resources that are needed to be delivered at the same time as the comparator service:

The nominated comparator is the SOC laboratory testing algorithm for CHB patients receiving stable NA therapy, typically comprised of entecavir or tenofovir disoproxil and/or lamivudine.

Outcomes

Outcome description – please include information about whether a change in patient management, or prognosis, occurs as a result of the test information:

The new testing algorithm is being proposed for the explicit purpose of changing patient management: selecting patients who are eligible for treatment with bepirovirsen; assessing response and cure outcomes among bepirovirsen treated patients to determine their suitability for cessation of background NA therapy; and monitoring functionally cured patients over time to ensure that any instances of relapse can be quickly and appropriately managed.

Proposed MBS items

Proposed item: AAAAA

MBS item number (where used as a template for the proposed item):

69483

Category number:

PATHOLOGY SERVICES

Category description:

MICROBIOLOGY

Proposed item descriptor:

Quantitation of Hepatitis B viral DNA in patients who are Hepatitis B surface antigen positive and who have chronic hepatitis B and are receiving antiviral therapy - 1 test (Item is subject to rule 25)

Proposed MBS fee:

$152.10

Indicate the overall cost per patient of providing the proposed health technology:

$0.00

Please specify any anticipated out of pocket expenses:

$0.00

Provide any further details and explain:

For a scenario of 5 years of follow-up (note: testing is required on an ongoing basis with patients receiving NA therapy): the proposed intervention (testing algorithm) would offer approximately $1600 in MBS savings compared to with the current testing algorithm, assuming screening patients for eligibility for treatment with bepirovirsen and 30% of patients achieve a functional cure outcome.

How is the technology / service funded at present? (For example: research funding; State-based funding; self-funded by patients; no funding or payments):

The relevant laboratory tests are all currently funded by the MBS under items 69475, 69478, 69481 and 69484 for HBsAg testing, and under 69482 and 69483 for HBV DNA testing. However, it is not clear that the current descriptors for these items will be appropriate and/or sufficient to accommodate the revised testing algorithm required for use alongside curative treatment regimens such as bepirovirsen.

Claims

In terms of health outcomes (comparative benefits and harms), is the proposed technology claimed to be superior, non-inferior or inferior to the comparator(s)?

Superior

Please state what the overall claim is, and provide a rationale:

The overall claim is that the proposed testing algorithm for patients with CHB receiving stable NA therapy will be superior in terms of health outcomes than the comparator (current SOC testing) in that it will facilitate treatment with bepirovirsen, and ideally other functionally curative treatment options for CHB. Those therapies will in turn deliver superior clinical outcomes, specifically greatly increased rates of functional cure, for patients with CHB, with acceptable safety and tolerability.

Estimated utilisation

Provide the percentage uptake of the proposed health technology by the proposed population:

Year 1 estimated uptake (%):

10%

Year 2 estimated uptake (%):

20%

Year 3 estimated uptake (%):

30%

Year 4 estimated uptake (%):

40%

Estimate the number of patients who will utilise the proposed technology for the first full year:

≤2,981 patients

Optionally, provide details:

≤2,981 are estimated to require ongoing HBV DNA monitoring following achievement of functional cure of CHB.

Will the technology be needed more than once per patient?

Yes, multiple times

Over what duration will the health technology or service be provided for a patient? (preferably a number of years):

Ongoing

Optionally, provide details:

Ongoing HBV DNA testing will be required to ensure functional cure of CHB is maintained once NA therapy is ceased (ensuring no relapse).

What frequency will the health technology or service be required by the patient over the duration? (range, preferably on an annual basis):

See below

Optionally, provide details:

The volume of HBV DNA testing in this population (functionally cured patients) is estimated to be less than in those patients remaining on NA therapy (with no functional cure). Refer to table 3 in the PICO set for further details

Consultation

List all entities that are relevant to the proposed service / health technology. The list can include professional bodies / organisations who provide, request, may be impacted by the service/health technology; sponsor(s) and / or manufacturer(s) who produce similar products; patient and consumer advocacy organisations or individuals relevant to the proposed service/health technology.

Entities who provide the health technology/service:

Royal College of Pathologists of Australasia

Victorian Infectious Diseases Reference Laboratory (VIDRL)

Entities who request the health technology/service:

GASTROENTEROLOGICAL SOCIETY OF AUSTRALIA

Entities who may be impacted by the health technology/service:

ASHM HEALTH

GASTROENTEROLOGICAL SOCIETY OF AUSTRALIA

THE ROYAL COLLEGE OF PATHOLOGISTS OF AUSTRALASIA

Patient and consumer advocacy organisations relevant to the proposed service/health technology:

HEPATITIS AUSTRALIA LIMITED

HEPATITIS B VOICES AUSTRALIA LIMITED

LIVER FOUNDATION LIMITED

Entity who produces similar products:

ABBOTT RAPID DIAGNOSTICS PTY LTD

DIASORIN AUSTRALIA PTY LTD

ROCHE DIAGNOSTICS AUSTRALIA PTY LIMITED

SIEMENS HEALTHCARE DIAGNOSTICS PTY LTD

Regulatory information

Would the proposed health technology involve the use of a medical device, in-vitro diagnostic test, radioactive tracer or any other type of therapeutic good?

Yes

Has it been listed or registered or included in the Australian Register of Therapeutic Goods (ARTG) by the Therapeutic Goods Administration (TGA)?

Yes

Is the therapeutic good classified by the TGA as either a Class III or Active Implantable Medical Device (AIMD) against the TGA regulatory scheme for devices?

Class III

Please enter all relevant ARTG IDs:

ARTG ID	ARTG name
207624	Hepatitis B virus IVDs
212433	LIAISON XL MUREX HBsAg Quant - Hepatitis B virus surface antigen IVD, kit, chemiluminescent immunoassay
215423	Hepatitis B virus IVDs - Hepatitis B virus IVDs
219709	Hepatitis B virus IVDs - Hepatitis B virus IVDs
294020	cobas HBV/HCV/HIV-1 Control Kit for use on the cobas 4800 System - HIV1/Hepatitis C virus/Hepatitis B virus nucleic acid IVD, control
307523	Procleix Ultrio Elite assay - HIV1/HIV2/Hepatitis C virus/Hepatitis B virus nucleic acid IVD, kit, nucleic acid technique (NAT)
312307	Elecsys HBsAg II (cobas e 402/801) - Hepatitis B virus surface antigen IVD, kit, chemiluminescent immunoassay
325057	Hepatitis B virus IVDs

ARTG ID	ARTG name
328440	Hepatitis B virus IVDs
413911	cobas HBV/HCV/HIV-1 Control Kit (cobas 5800/6800/8800) - HIV1/Hepatitis C virus/Hepatitis B virus nucleic acid IVD, control
413911	cobas HBV/HCV/HIV-1 Control Kit (cobas 5800/6800/8800) - HIV1/Hepatitis C virus/Hepatitis B virus nucleic acid IVD, control
426910	cobas MPX (cobas 5800/6800/8800) - HIV1/Hepatitis C virus/Hepatitis B virus nucleic acid IVD, kit, nucleic acid technique (NAT)
463647	Hepatitis B virus IVDs

Is the intended purpose in this application the same as the intended purpose of the ARTG listing(s)?

Yes

Codependent details

Will a submission be made to the Pharmaceutical Benefits Advisory Committee (PBAC)?

Yes

Please provide a rationale for the codependency and indicate how the proposed PBS restriction would reference the intervention(s) proposed for MSAC consideration:

The codependency in this instance is two-directional: the revised algorithm is necessary to support the proposed introduction of a functionally curative treatment regimen and not strictly necessary in the absence of this.