Template 1: Manifesto Initiative Template

This template seeks a high-level summary of the Budget 2018 manifesto initiatives.

Your Vote Analyst will complete their assessment in the grey fields. Supporting information must be provided to your Vote Analyst. Please use the descriptions provided as a guide for what information is expected in each of the boxes below.

Contact your Vote Analyst in the first instance with any queries.

Section 1: Overview and Context

<table>
<thead>
<tr>
<th>Vote</th>
<th>Health</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible Minister</td>
<td>Hon Dr David Clark</td>
</tr>
<tr>
<td>Initiative title</td>
<td>National Bowel Screening Programme Implementation Year 2</td>
</tr>
</tbody>
</table>
| Initiative description | This funding for the National Bowel Screening Programme (NBSP) will enable the NBSP to operate in a further five DHB regions. This includes:  
- the direct costs relating to the five DHBs operation (diagnostic and surveillance colonoscopies etc)  
- the associated costs of servicing this additional population for the National Coordination Centre, laboratory testing, and bowel screening regional centres.  
- It will also fund the additional costs of the information technology solution not covered by the capital contingency.  
Bowel screening will reduce bowel cancer mortality, increase the proportion of bowel cancers detected at an early stage, reduce treatment costs, and increase five year relative survival rates for bowel cancer. |
| Workstream | BGA/Social Sector/Capital/Other |
| Responsible Vote Analyst | |

1.1 EXECUTIVE SUMMARY

A. Short summary of the proposed initiative and expected outcomes.

The National Bowel Screening Programme (NBSP) will detect the early symptoms of bowel cancer in those aged 60-74 years of age. Budget 2018 will: implement the NBSP in a further five DHBs regions, including the purchase of Faecal Immunochemical Test (FIT) kits, laboratory testing, diagnostic and surveillance colonoscopies, National Coordination Centre, four Bowel Screening Regional Centres and Information Technology (IT) National Screening Solution or NSS.

By 2020/21, across the national programme as a whole each year, 350,000 people will be invited, 210,000 test kits will be returned, 9,300 colonoscopies will be carried out and 700 additional bowel cancers will be detected with flow on reductions in early mortality and improvements in quality of life.

<table>
<thead>
<tr>
<th>Funding Sought ($m)</th>
<th>2017/18</th>
<th>2018/19</th>
<th>2019/20</th>
<th>2020/21</th>
<th>2021/22 &amp; out years</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating</td>
<td></td>
<td>17.39</td>
<td>17.18</td>
<td>15.81</td>
<td>16.70</td>
<td>67.08</td>
</tr>
<tr>
<td>Capital¹</td>
<td>-</td>
<td>-</td>
<td>-</td>
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</tr>
</tbody>
</table>

¹ The first 10 years of capital investment is counted against the capital allowance. Additional FY columns are to be added to funding table above to reflect the full capital costs of an initiative.
[If your proposal requires time limited funding until the year 2020/21 please delete the 'outyears' from the table. If your proposal requires time limited funding beyond 2020/21, please add new columns to the table to reflect the profile of funding sought.]
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
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<td>-</td>
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</tr>
</tbody>
</table>

**Vote Analyst Recommendation**

Three components required: See Vote Analyst Assessment Guidance.
1. [Support in full/Partial support and Scale/Defer]
2. [Please provide a two sentence summary to explain your recommendation above].
3. [Provide a succinct overall assessment which outlines the key judgements which support your two sentence summary (above)].

This will be entered into CFIISnet and used in the supporting comment next to initiative assessments in advice to Ministers.

This will be used in the Treasury moderation process and package development stages.

### 1.2 CONTEXT

| A. Has the initiative been stated in Labour’s Fiscal Plan, Coalition agreement, or Confidence and Supply Agreement? | Y |
| B. Has the initiative been jointly developed with other agencies? | N |
| C. Have you attached the supporting Better Business Case, Regulatory Impact Assessment, etc. (if applicable)? | N |

**G. If required, please provide additional information to support your answers above.**

s9(2)(f)(iv)

The purpose of these set of questions is to get a quick understanding of the broader context to support the assessment of the initiative. In 2016, Cabinet decided to establish a National Bowel Cancer Screening Programme (NBSP). Budget 2016 allocated $39.3 million for the establishment of the NBSP and contingency capital funding of $38.5 million for IT development, subject to Business Case approval. The contingency funding was extended to 31 December 2018. Budget 2017 allocated $38.5 million, over four years, of new operating funding to roll-out the NBSP to the first five DHBs and funded a proportion of the national coordination and regional centres.

**Budget 2018 seeks** further roll-out of NBSP to another five DHBs and upscale those services that ‘go-live’ in 2018/19 for the additional volumes, and the associated out year costs, minus funding already approved in Budget 2016 and Budget 2017 = $87.085 million over four years. Services would include the next five DHBs, the remaining funding for the national and regional coordination centres, and operational funding for the national IT solution.
### Section 2: Problem / Opportunity & Strategic Alignment

#### 2.1 PROBLEM DEFINITION OR OPPORTUNITY

**A. Describe the problem or opportunity that this initiative seeks to address.**

**The Problem**

New Zealand has one of the highest rates of bowel cancer in the developed world. Bowel cancer is the second most common cause of cancer death in New Zealand, after lung cancer, with approximately 3,075 new cases registered and 1,252 deaths in 2013 compared to 3,016 new cases registered, and 1,283 deaths in 2012. New Zealand has the third highest mortality rate for bowel cancer in the Organisation for Economic Co-operation and Development (OECD) for women and the six highest for men.

There are population variations in bowel cancer incidence, with higher rates for older people (62 percent of the cancers identified in the bowel screening pilot were detected in those aged 60 or over), males, non-Maori/non-Pacific, and the most socially deprived (Quintile 5).

**The Opportunity**

Bowel cancer is highly treatable when identified in the early stages. The high cancer mortality rates in New Zealand are amenable to change. Screening for bowel cancer presents an opportunity to reduce mortality rates, from a cancer that, if diagnosed and treated at an early stage can increase the chance of a five year survival. Those with localised disease (early stage) at diagnosis have a 95 percent chance of five year survival in comparison to those with distant spread (later stage) have only a 10 percent chance of five year survival.

Intervention logic attached.

**B. What inputs will the preferred option buy and why?**

To roll out the NBSP, the Ministry must purchase and commission services from a range of providers including District Health Boards (DHBs) (to carry out colonoscopies), laboratory services (to analyse screening samples), a national coordination centre (administration of the NBSP and participant contact) and regional centres (clinical oversight and monitoring) and Information Technology (IT) providers.

**Funding from the Budget 2018 will purchase, over four years:**

**National Coordination Centre costs**

Approximate total **[redacted]** comprising:
- Annual postage costs for Invitation letters, FIT kits (first distribution) etc
- Management of participants along the screening pathway
- Communication costs
- Staffing costs and overheads
- Active follow up of priority populations who don’t return their test kits
- 0800 number phone system

**National FIT Laboratory**

Approximate total **[redacted]** comprising:
- Staffing costs
- FIT kit purchase

**Bowel Screening Regional Centres**

Approximate total **[redacted]** comprising of regional delivery of services

- DHBs
- Supporting local colonoscopy provision (eg clinical leadership, training GP’s and project management)
- Colonoscopy service provision

**s9(2)(f)(iv)**

**s9(2)(f)(iv)**
C. What options were considered to achieve the Government’s manifesto commitment and why did you choose your preferred option?

Cabinet agreed option 4 (below) in August 2010. To date, Cabinet has not reviewed its decision [SOC-16-MIN-0108 refers]. The options include commentary to reflect their impact on the NBSP in November 2017.

The four options

Option 1 – Do nothing

‘Do nothing’ would not roll out NBSP to the remaining 15 DHBs, with no other DHB offering bowel screening. Access to colonoscopy would continue to be by referral after a patient had presented with symptoms suggesting a bowel condition or bowel cancer. Many of these referrals would be after a patient presented at an Emergency Department.

Option 2 – Basic

Screening to people aged 60-74, with no primary care involvement in results management and no funding for surveillance colonoscopies.

This option would introduce a screening programme to people age 60-74 but only fund the basic screening pathway (FIT kits). The basic option was achievable within the current workforce capacity. The basic screening programme would still likely generate a need for an additional 9,300 diagnostic colonoscopies in the first full year, which would be funded through the basic option, but not for surveillance colonoscopies.

This option would not involve primary care in positive results management, which has been shown to be beneficial to promoting equity and engagement in bowel screening. By not involving primary care a bowel screening programme would be less aligned with the principles of the New Zealand Health Strategy.

Option 3 – Integrated
Screening to people aged 60-74, primary care involved in results management, but no funding for surveillance colonoscopies.

Introduce a screening programme to people age 60-74 and enable positive FIT results to be managed by the patient’s primary care provider, which is more in line with the principles of the New Zealand Health Strategy. A NBSP would be funded for a more integrated screening pathway but not for ongoing surveillance colonoscopies.

**Option 4 – Complete**

Screening to people aged 60-74, primary care involved in results management, and funding for surveillance colonoscopies.

**Cabinet decisions in August 2016**

**Preferred option**

Option 4 – Complete was chosen. In 2016 Cabinet agreed that the complete option was achievable in terms of capacity and noted the support from the sector. The option is more in line with the New Zealand Health Strategy principles, and DHBs were considered more able to safely manage surveillance colonoscopy demand as a result of providing additional funding through a screening programme.

**Rejected options**

1. Do nothing was rejected because the benefits of a NBSP would not be realised and New Zealand would continue to record high rates of bowel cancer in comparison to other members of the OECD.
2. Basic was rejected because it did not include primary care involvement and did not include ongoing surveillance colonoscopies.
3. Integrated was rejected because it did not include ongoing surveillance colonoscopies.

**Implications of the four options in November 2017 against the Government’s priorities**

**Option 1 – do nothing**

Do nothing would result in the roll out of the NBSP being discontinued with bowel screening only provided in the following DHBs:

- Hutt Valley DHB
- Wairarapa DHB
- Waitemata DHB
- Southern DHB and
- Counties Manukau DHB

The infrastructure established to support 20 DHBs will not be operating at maximum efficiency and can only be phased out once all DHBs no longer provide bowel screening and surveillance.

The overall mortality rate from bowel cancer is unlikely to reduce against international comparators.

**Option 2 - basic**

The basic option would fund the provision of FIT kits and laboratory costs to enable initial screening. However, the availability of diagnostic colonoscopies would be subject to DHBs funding colonoscopies from their baseline budgets, with no additional funding provided by the Ministry. There is no funding for the involvement of GPs.

The overall mortality rate from bowel cancer is unlikely to reduce against international comparators.

**Option 3 - Integrated**

As with the basic option (Option 2), this option only funds the screening part of the programme, with the additional funding to support participants’ GPs. The integrated option does not provide additional funding for colonoscopies, which DHBs would need to fund from their baseline budget. The recent gains made with additional funding to
DHBs to reduce wait times for colonoscopies would be lost. Option 3 continues to be discounted because there needs to be a clear patient pathway including colonoscopies for the NBSP to provide a necessary level of duty of care for participants. The overall mortality rate from bowel cancer is unlikely to reduce against international comparators.

**Option 4 - Complete**

The complete option (Option 4) is the only option that supports the Government’s commitment to ‘improving cancer care for Kiwis’, as set out in the Labour Manifesto 2017.

The design of the NBSP sets out clear deliverables and timeframes for the patient pathway to ensure pre-cancerous polyps, and adenomas, or the early stages of bowel cancer are detected and treated.

<table>
<thead>
<tr>
<th><strong>VOTE ANALYST COMMENT</strong></th>
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</thead>
<tbody>
<tr>
<td><strong>Has the problem or opportunity been clarified and does it support the prioritisation of this manifesto initiative?</strong></td>
</tr>
<tr>
<td>Has the agency clearly outlined what the initiative will be buying, for who (if applicable), and what it is intended to achieve?</td>
</tr>
<tr>
<td>What is the cost to deliver this proposal and is it comparable to other ‘like’ costs? Has the agency provided detail on the different components making up these costs?</td>
</tr>
<tr>
<td>Is clear information provided on the alternative options and counterfactual?</td>
</tr>
<tr>
<td><em>If you do not have sufficient information, please follow up with your agency as these are key ingredients for the package development and bilateral advice.</em></td>
</tr>
</tbody>
</table>
### 2.2 FUNDING IMPLICATIONS

#### A. Provide option(s) for scaling, phasing and this initiative.
Builds on information provided in section 2.1.B of this template.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td><strong>Are there specific parts of the initiative which can be scaled or phased and why?</strong></td>
<td></td>
</tr>
<tr>
<td>The National Bowel Screening Programme has been scaled and phased. Implementation is phased over four-years, with five DHB regions commencing bowel screening each financial year. The underpinning infrastructure (National Coordination Centre, Regional Centres and National Screening IT Solution) is scaled for the screened population. DHBs introducing bowel screening in 2018/19 represent 16% of the eligible population versus the Programme Business Case which had 10 DHBs implementing bowel screening in 2018/19 representing 55% of the eligible population. Refer to section 2.1c for the options considered as part of the Programme Business Case. The age range and bowel screening test (Faecal Immunochemical test) positivity level have been set in line with the New Zealand bowel screening pilot and international evidence to benefit those most at risk from bowel cancer at a population level. The National Bowel Screening Programme has established quality standards in line with international best practice for a safe quality programme. Compromise on these minimum standards has the potential to adversely impact the population being screened.</td>
<td></td>
</tr>
<tr>
<td><strong>What is the minimum-level of investment or critical components of the initiative to meet the manifesto commitment?</strong></td>
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<tr>
<td>The minimum level of investment is the funding requested in the Budget 2018 bid for delivery of bowel screening in five more DHBs and upscaling the underpinning infrastructure including implementation of the National Screening IT Solution.</td>
<td></td>
</tr>
<tr>
<td><strong>Why is it important that funding is secured for Budget 2018/19?</strong></td>
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<tr>
<td>Funding is required for the operational costs associated with service delivery to continue implementation of the National Bowel Screening Programme in the next five DHBs.</td>
<td></td>
</tr>
<tr>
<td><strong>What would be the implications of not funding this initiative in Budget 2018?</strong></td>
<td></td>
</tr>
<tr>
<td>Implementation of the National Bowel Screening Programme would pause with screening services only offered in the first five DHB regions (Hutt Valley, Wairarapa, Waitemata, Southern and Counties Manukau). 68% of 60-74 year olds would be excluded from bowel screening until the funding was available to re-commence roll-out. Programme credibility would be lost. The benefits (refer section 3) would not be realised. In the long term bowel screening in New Zealand was found to be cost effective (and potentially cost saving) i.e the costs of treatment saved are greater than the cost of the screening programme. Health inequity would increase as where you lived would determine access to bowel screening. The funding provided in Budget 16 for the programme implementation team in years 2018/19 onwards would be deferred until roll-out recommenced, as the project resources would be disestablished. Additional funding for project start-up costs would be required to recommence programme implementation.</td>
<td></td>
</tr>
<tr>
<td><strong>B. Outline how the costs compare to those outlined in Labour’s Fiscal Plan (if applicable)?</strong></td>
<td>This did not form part of the Manifesto Initiatives outlined in Labour’s Fiscal Plan so there is no comparison to make of this initiative to their original plan.</td>
</tr>
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</tr>
<tr>
<td><strong>C. Describe the implications on service delivery and risks/trade-offs for each of the scaled, phased or deferred scenarios section 2.2.A.</strong></td>
<td>This will allow the risks and implications associated with scaling, deferral and/or phasing options to be set out for Ministers in the draft package. N/A</td>
</tr>
</tbody>
</table>

**VOTE ANALYST COMMENT**

Have credible choices and implications been set out? Is it clear how costings differ from Labour’s Fiscal Plan? If this initiative is prioritised down or scaled to fit within the draft package, do you have sufficient information to make these judgements? At a minimum, can you provide to Ministers:

- What are the most valuable components?
- What is the do-minimum/point at which no worth doing?
- What are the risks or impacts of scaling?
- An understanding of why this needs to be funded for 2018/19?

The development of the Budget package will require trade-offs and prioritisation across initiatives. Advice to Ministers will need to set these choices (and the risks/consequences) out.
## Section 3: Value for Money and Impacts

### 3.1 EXPECTED IMPACTS

<table>
<thead>
<tr>
<th>A. What are the costs and benefits of this initiative compared to the counterfactual?</th>
<th>Introduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>Screening programmes are designed to reduce the risk or impact of disease in a defined population. The aim of screening programmes is to identify individuals most at risk so early treatment can be offered. Screening programmes look for risk markers for disease and are based on careful calculation, including who will benefit, the scope for treatment and the level of test accuracy. This section sets out the likely impact of the whole programme. Template 2 estimates the specific impact of this initiative, ie impact of the programme in five additional DHBs.</td>
</tr>
</tbody>
</table>

### Who

The National Bowel Screening Programme (NBSP) will offer screening to men and women aged between 60 and 74 years, who are eligible for publicly funded healthcare. Bowel cancer incidence increases with age, with 82 percent of cases occurring in those aged 60 or over. The number of new cases of bowel cancer each year is projected to increase by 15 percent for men and 19 percent for women.

Survival is marginally better for younger people with colorectal cancer.

### Gender

Worldwide, bowel cancer is more common in men than in women and this is also true in New Zealand. It is the second most commonly registered cancer for men after prostate cancer and the second most common for women after breast cancer. Historically, the bowel cancer rates in New Zealand women have been higher than for women in any of the other 32 countries within the international screening network.

Bowel cancer is the second most common cause of cancer death for both men and women, after lung cancer.

### Ethnicity

Rates of bowel cancer vary between population groups. Rates of bowel cancer in the Asian population are lower than for other ethnicities with 18.3 per 100,000 population in 2012. Pacific people experienced a rate of 27.0 and Māori a rate of 33.3. Those in other population groups showed a rate of 45.3 registrations per 100,000 population.

Rates of death for bowel cancer are higher for non-Māori (compared to Māori) and for males (compared to females). Māori accounted for five percent of all bowel cancer deaths between 2003 and 2012.

Bowel cancer is one of the few cancers for which Māori show lower registration and death rates than non-Māori. However, whilst bowel cancer occurs less frequently in Māori compared to non-Māori, once diagnosed, Māori are more likely to die of bowel cancer than non-Māori. This may be attributed to the higher rates of co-morbidity (making treatment more challenging) found in Māori and disparities in access to cancer treatment, and highlights the need for proactive follow-up once a diagnosis has been made. Māori are also more likely to present at a later stage at diagnosis, impacting their survival. Between 2003 and 2012, the non-Māori mortality rate for bowel cancer showed a slight downward trend. Rates for Māori were more variable.

### Deprivation

Survival rates for people diagnosed with bowel cancer vary significantly by deprivation quintile. Between 1998-99 and 2010-11, the five-year relative survival rate increased from 60.5 percent to 69.2 percent for Quintile 1-2 (the least deprived). Over the same period for Quintile 5 (the most deprived), the rate remained relatively constant with a small increase from 55.4 percent to 55.9 percent.

A side effect of the NBSP is that a small number of people will get false positive results and some of those will receive unnecessary treatment, in most cases, a colonoscopy.
The benefits of identifying people with early stage disease are weighed against the harms to others, and widening the population to be screened can reduce the benefits, which include early detection of disease, preventing cancer, preventing morbidity and mortality.

**Impacts**

- Financial cost to implement the National Bowel Screening Programme
- Additional burden on colonoscopy and pathology related capacity, including workforce and theatre capacity
- Adverse events following colonoscopy, for example, bleeding or tearing of the bowel wall or complications from sedation. The risk of significant complication is approximately one in 1,000 procedures. This harm, whilst significant for the individual, is within internationally acceptable ranges.
- Additional retirees requiring superannuation payments since more people survive longer.
- Mental health considerations as people waiting for a colonoscopy following a positive test may become anxious if wait times are too long. The provision of accurate and timely results will be critical in reducing anxiety, as is the link between the NBSP and the individual’s PHO and general practitioner.
- False positive test results
- Bowel screening will produce a pronounced shift in the proportion of patients being diagnosed with cancers at an earlier stage (ie the cancer is less advanced). The evaluation of the pilot showed that in the unscreened population only 13 percent of all cancers are found at Stage 1. In the screened population 39 percent of cancers were found at Stage 1.
- International publications estimate a reduction in the mortality rate of between 16 percent and 22 percent (for the cohort screened) eight to 10 years following the implementation of a screening programme. In 2013 the age standardised colorectal cancer mortality rate per 100,000 populations was 16.1.
- Analyses has shown that the Quality of Life Years (QALY) gain for the NBSP using an age-range of 60 to 74 and a positivity threshold of 200ngHb/ml buffer would result in a QALY gain of 0.0607 (22 days) per person invited.

**Other impacts include**

- A reduction in the incidence of bowel cancer by locating and removing pre-cancerous lesions prior to them becoming cancers.
- Fewer Emergency Department (ED) admissions required as patients are diagnosed earlier through screening.
- Decrease in hospice/palliative care requirements through higher survival rates.
- Increase in workforce as people are more likely to be retained in the workforce if diagnosed with bowel cancer early.
- Potential increase in workforce where survivors of bowel cancer take on childcare duties (eg for grandchildren), so that parents can go into paid employment.
- Identification of known genetic cancers in more families.
- Raising awareness. Local and national advertising campaigns will encourage awareness of bowel symptoms, which may encourage earlier detection in the unscreened population.
- The halo effect. Symptomatic and surveillance colonoscopy, pathology and cancer services may improve in quality and timeliness due to the imposed rigour of the NBSP.
- Improving our standing with other OECD countries, which currently shows New Zealand having the fifth highest rate of bowel cancer mortality.
When

International publications estimate a reduction in the mortality rate of between 16 percent and 22 percent (for the cohort screened) eight to 10 years following the implementation of a screening programme. Values vary depending on country, test type, the age of the screening cohort and the positivity threshold. The 2016 cost-effectiveness report from Sapere Research Group\(^4\) estimated a reduction in bowel cancer incidence of 35 percent, and a reduction in bowel cancer mortality of 39 percent (based on pilot parameters), over the lifetime of the cohort modelled.

<table>
<thead>
<tr>
<th>VOTE ANALYST COMMENT</th>
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<tbody>
<tr>
<td>[Please rate this initiative on a scale from 0-5 to reflect Value for money. Please explain your rating and provide a short comment on the quality of the cost-benefit analysis and the reliability of the inputs. See section 3.2.2 of the September guidance.]</td>
</tr>
<tr>
<td>Has a compelling counterfactual been provided? Or if not, have the risks and implications been made clear?</td>
</tr>
<tr>
<td>The prompts above should be completed at a minimum by the agency to ensure a consistent assessment across initiatives.</td>
</tr>
</tbody>
</table>

### 3.2 ASSUMPTIONS AND UNDERLYING EVIDENCE

<table>
<thead>
<tr>
<th>A. Outline the assumptions underpinning the impacts described above.</th>
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<tbody>
<tr>
<td>The NBSP assumptions are:</td>
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<tr>
<td>In the first year of full operation (all 20 DHBs)</td>
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<tr>
<td>• 350,000 people will be invited</td>
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<td>• 210,000 test kits will be returned by mail</td>
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<tr>
<td>• 9,300 colonoscopies will be carried out</td>
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<tr>
<td>• 700 people will have bowel cancer detected.</td>
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<tr>
<td>Without the NBSP, less bowel cancers will be detected at Stage 1 or 2, and more bowel cancers will be detected at Stage 3 and 4, when they are harder to treat, more expensive and more likely to reduce life expectancy. Cost savings from early detection would not be realised, and many Stage 3 and 4 bowel cancers will be detected on presentation to an Emergency Department.</td>
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<thead>
<tr>
<th>B. What evidence supports the assumptions and impacts?</th>
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<tbody>
<tr>
<td>Refer page 16, below.</td>
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</table>

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Provide an assessment of the assumptions and judgements related to the expected returns. Are these clearly stated and reasonable and appropriate given the proposal's intended outcomes?</td>
</tr>
<tr>
<td>Does the evidence (qualitative and/or quantitative) provide reasonable certainty and confidence? Why/why not?</td>
</tr>
</tbody>
</table>

### 3.3 SENSITIVITY ANALYSIS

<table>
<thead>
<tr>
<th>A. Provide examples or scenarios to show how impacts change with different assumptions or policy settings.</th>
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<tbody>
<tr>
<td>The benefits in terms of survival and gains in quality of life are so significant that different assumptions or policy settings have minimal impact.</td>
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</table>

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<tbody>
<tr>
<td>Has the agency completed sensitivity analysis which steps through the impact of different elements on the initiative?</td>
</tr>
<tr>
<td>This type of information will be critical when outlining choices and impacts/risks associated with trade-offs as the draft package is developed and advice is provided to Finance Ministers.</td>
</tr>
</tbody>
</table>
## Section 4: Implementation, Risk Management and Evaluation

### 4.1 Implementation

**A. How will this initiative be delivered?**

The Ministry’s Service Commissioning Directorate is leading the implementation of the NBSP. The delivery of the NBSP is by the National Coordination Centre, Faecal Immunochemical (screening) test national laboratory and DHBs under contract to the Ministry. The contracts identify what capability is needed by the service provider to implement the NBSP. There may be capital requirements for DHBs in terms of theatres and IT system development. Bowel screening will create a hump increase in demand for DHBs in both diagnostic (colonoscopy) and treatment services. The Ministry has a preference for DHBs to manage their screening based increased demand within existing capability, or outsource to private, rather than new capital builds.

The 2018/19 is the second year of implementation, with the completion date set at the end of the 2020/21.

For the National Screening IT solution, the Ministry undertook an open tender process for a commercial off-the-shelf product that is configurable to meet bowel screening needs. Before bowel screening goes live in a DHB, the Ministry undertakes a readiness assessment. DHBs are preparing for the implementation of bowel screening in three stages: (1) building colonoscopy capacity including managing symptomatic demand within national guidelines and wait time indicators; (2) implementation planning; (3) establishing resources and set-up of service model to deliver diagnostic and treatment services. The readiness assessment takes place at stage three. The NBSP also participates in Gateway reviews and other Corporate Centre reviews.

**B. Description of engagement with other agencies impacted by this initiative (if applicable).**

What are the interdependencies and/or cross agency collaboration that is required to deliver this proposal?

Which agencies will be delivering the initiative and how have they been involved in the development process to date?

Not applicable

**C. How does this initiative relate to current activity undertaken by your agency and/or by others across the State Sector?**

The purpose of this is to get an understanding of the range of services already available and how this addresses different needs. This should reveal the gap that exists and strengthen the case for the initiative. The key question of interest here is why these current services don’t meet the need described above.

The diagnostic and treatment services associated with bowel cancer are in place for an individual experiencing symptoms. The National Bowel Screening Programme enhances the detection of bowel cancer in the eligible population by the introduction of a screening test. Bowel cancer symptoms present at a later stage than can be detected through screening.

In the New Zealand bowel screening pilot, 39 percent of patients were diagnosed at Stage 1 (localised cancer) compared with 13 percent in the PIPER study (of the non-screened population)\(^2\). Diagnosis at Stage 2 and 3 was broadly similar for screened and non-screened populations, but diagnosis at Stage 4 (where cancer has spread to other organs) was significantly lower in the pilot, with only eight percent diagnosed at that stage compared with 24 percent of the unscreened population. New Zealanders are more likely to be diagnosed with advanced stage cancers than people in Australia, the United States of America and the United Kingdom.

There is a strong association between the stage (extent) at which bowel cancer is diagnosed and eventual survival. Those with localised disease (earlier stage) at diagnosis have a 95 percent chance of a five year survival. Those with distant spread (metastases, later stage) have only a 10 percent five year survival rate.

Bowel screening is the first cancer screening programme for both men and women and is the first screening programme to invite those eligible through a population based register.

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\(^2\) The PIPER Project Final report 7 August 2015, Health Research Council reference: 11/764
<table>
<thead>
<tr>
<th>Risk Description</th>
<th>Impact or Consequences</th>
<th>Likelihood</th>
<th>Severity</th>
<th>Overall Risk</th>
<th>Mitigation / Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>DHBs are unable to deliver colonoscopy services in a safe and effective manner due to lack of capacity</td>
<td>Increased waiting times, loss of benefits realisation within expected timelines, and impact on quality standards</td>
<td></td>
<td></td>
<td></td>
<td>DHBs are currently meeting 70% of their wait time indicators. Largest increase in demand is forecast for 12 months after go-live for each DHB. Programme working with DHBs to ensure they are planning for this.</td>
</tr>
<tr>
<td>Positivity rates in DHBs nationally differ significantly from the pilot</td>
<td>Reduce public and sector confidence in the NBSP. Increased costs and delays to the NBSP</td>
<td></td>
<td></td>
<td></td>
<td>DHBs rolled out in a financial year approach, which will allow the FIT threshold to be adjusted if required</td>
</tr>
</tbody>
</table>

**VOTE ANALYST COMMENT**

The implementation assessment will form a critical piece for the advice on the manifesto initiatives. In particular aspects such as the ability of the Government to ramp up for delivery, agency and market capacity and risks to the delivery need to be considered.

Please provide a brief comment on the agency’s capability to deliver the initiative and ensure that the expected outcomes are achieved.

Has your agency set out the potential barriers or roadblocks expected in implementing the initiative and whether a plan exists to mitigate these? (This could include, for example, limited supply in the market for resources required to deliver the initiative, access to the target population/self-selection issues, and/or ability of agency to contract with providers)

[Please rate this initiative red, amber or green according to your assessment of risks associated with the delivery of this initiative. Consider the size of the proposal relative to the agency’s activity, any cross agency impacts, and impacts to front-line service delivery.]

### 4.2 LEGISLATIVE AND REGULATORY IMPLICATIONS

A. Please detail any legislative implications and whether the Regulatory Impact Assessment (RIA) requirements apply.  

N/A

**VOTE ANALYST COMMENT**

[Provide an assessment of the regulatory impacts of this proposal in consultation with the Regulatory Quality team.]

### 4.3 PERFORMANCE MONITORING AND EVALUATION

A. Performance measures/indicators.

Monitoring indicators include participation, positivity, time to colonoscopy, colonoscopy completion rate and cancer detection rates (amongst others). All indicators will be stratified by ethnic group, age, sex, and deprivation quintile. Investigations are taking place to ascertain whether indicators can also be reliably stratified by urban/rural profile. A benefits realisation plan is in place that clearly identifies the benefits of bowel screening, how they will be measured and evaluated.

B. Outline how the implementation and performance of the initiative will be regularly monitored.

The NBSP has quality standards along the bowel screening pathway. Ongoing monitoring will be undertaken at national, regional and local levels. Key performance indicators will be monitored at the national level by the Ministry. Regular six monthly monitoring reports will be published. Regional bowel screening centres will manage quality across the region to ensure DHBs are meeting national quality standards particularly in relation to colonoscopy. Providers will have continuing quality assurance processes in place.
### 4.3 PERFORMANCE MONITORING AND EVALUATION

| C. Describe the method proposed to evaluate the impact of the initiative [if appropriate]. | The Budget 2018 bid includes funding for a post implementation evaluation in year 2020/21, once the national roll-out is complete. |

### VOTE ANALYST COMMENT

Please provide a brief comment on the proposed performance monitoring and evaluation. **A key aspect will be how success can be measured and the impact on the Government’s objectives.**

Is there a clear and quality plan for how the success of the initiative will be measured and at which points or milestones?
Impact Summary Tables

This template is optional for the submission of manifesto initiatives as supporting information for the value-for-money section. For initiatives without a CBAx, Table 1 should be completed if practical. Table 2 should be completed for all initiatives.

Table 1 – Return on Investment Summary

<table>
<thead>
<tr>
<th>Return on Investment Summary using the CBAx model (if applicable)</th>
<th>Discount Rate</th>
<th>Evidence Certainty³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiative costs, ie, Government investment</td>
<td>6% real (default)</td>
<td>Low (s 9(2)(f)(iv))</td>
</tr>
<tr>
<td>Government impacts</td>
<td>Low</td>
<td>Medium</td>
</tr>
<tr>
<td>Wider societal impacts</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Total societal impacts (NPV)</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Un-monetised impacts</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Benefit Cost Ratio (BCR)</td>
<td>1.6</td>
<td>Low</td>
</tr>
<tr>
<td>Return on Investment (ROI) – Societal Total</td>
<td>1.6</td>
<td>Low</td>
</tr>
<tr>
<td>Return on Investment (ROI) – Government</td>
<td>0.2</td>
<td>Low</td>
</tr>
</tbody>
</table>

Where a CBAx has been completed, copy the return on investment summary from the CBAx model. Please see section 6 of the September Guidance for further information.

³ Rate your level of confidence in the assumptions and evidence as high (green) if based on significant research and evaluations that is applicable, medium (amber) if based on reasonable evidence and data, or low (red) if there is little relevant evidence. Colour the rating box for each impact.
Table 2 – Costs and Benefits Table

<table>
<thead>
<tr>
<th>Identify and list impacts under the headings below</th>
<th>Scenario&lt;sup&gt;4&lt;/sup&gt;</th>
<th>Assumptions and evidence (quantify if possible, and use ranges where appropriate)</th>
<th>Evidence certainty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$m present value</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indicate which benefits and costs are “key” (both monetised and un-monetised)</td>
<td></td>
<td></td>
<td>Medium</td>
</tr>
<tr>
<td>Cost of the Initiative</td>
<td>9(2)(f)(iv)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government Benefits/(Costs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Superannuation - Generalised</td>
<td>(4)</td>
<td>Screening increases the likelihood that cancers will be detected soon. Earlier detection is associated with greater likelihood of survival. Of those people diagnosed with stage I or stage II bowel cancer, 90% of people will survive to the 5 year mark, compared with stage IV cancer where only 11% survive for five years. Reduction in the incidence of deaths related to bowel cancers will increase superannuation expenditure in retired people. It will also increase tax revenue and personal income in working aged people (and perhaps in benefit payments). We have not quantified these impacts.</td>
<td>Medium</td>
</tr>
<tr>
<td>DHB Funded Treatment Costs</td>
<td>(5)</td>
<td>Bowel screening will result in earlier detection of cancers resulting in a short term increase in cancer treatment. The budget bid does not include DHBs costs for this. Electives funding has been assumed to fund part of the increase in cancer treatment, with the balance to be funded within DHBs baselines.</td>
<td>Medium</td>
</tr>
<tr>
<td>Stage Shift Savings</td>
<td>5</td>
<td>The cost of treating cancers identified at an earlier stage is lower than that of cancers identified at later stages. Shifting the numbers detected to the earlier stage therefore reduces cancer treatment costs.</td>
<td>Medium</td>
</tr>
<tr>
<td>Avoided Treatment Costs</td>
<td>45</td>
<td>With a national screening programme, the number of people that will have bowel cancer is expected to reduce by 1,315 cases in four years time. This bid pro rata the total reduction based on the population for the 5 DHBs.</td>
<td>Medium</td>
</tr>
<tr>
<td>Total Quantified Government Impact</td>
<td>41</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wider Societal Benefits/(Costs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality-adjusted life year (QALY) gained</td>
<td>286</td>
<td>Based on the review of the Waitemata pilot (Love, Poynton and Swanson 2016), the QALY benefit from screening per se has been estimated at 0.0607 for each person invited to attend. We assume that this is a one off gain, i.e. occurs only when a person is invited to be screened. Gains occur in years three and four, to half of the population in each year.</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>330</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>4</sup> Each column is for the different scenarios considered for the initiative. You can add a column if you have considered more than two scenarios. The scenarios will be the output from carrying out sensitivity analysis, for example looking at how the monetised impacts are affected by a different target population, success rate, discount rate etc.
We have not included quantified impacts for the QALYs gained as the result of successful treatment and ill health avoided, nor the value of the lives extended by earlier identification and treatment.

<table>
<thead>
<tr>
<th>Total Quantified Wider Societal Impact</th>
<th>286</th>
<th>330</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Present Value of Total Quantified Societal Impacts</td>
<td>9(2)(f)(iv)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Evaluation Plan

This template must be completed as supporting information for manifesto initiatives.

Evaluation Plan

How will you evaluate (after the programme has been rolled out) what the effect of the programme was, particularly on the impacts listed in Section 3?\(^5\)

Evaluation Approach:
Data:
- What outcomes will you measure, and how will you measure them? You should reference the key outcomes discussed in the impact summary table in Section B and your intervention logic, but you can discuss additional outcomes and intermediate outcomes/outputs here if you wish. If it is not possible or cost-effective to measure some of the outcomes in the impact summary, please state what outcomes these are and explain why you won’t be measuring them.

The benefits the implementation team will monitor, analyse, report on, and realise fall into two classifications: those that can be measured and realised once the district health boards (DHBs) roll out of the National Bowel Screening Programme (NBSP) commences, and those that, whilst monitored regularly, won’t be realised until the NBSP has been running for a minimum of 10 years.

The benefits that the NBSP will achieve with appropriate and equitable participation, are:

- Maximise detection of bowel cancers within the NBSP parameters
- Increase the proportion of screen detected cancers detected at TNM\(^6\) Stage 1 and Stage 2
- Appropriate rate of screen detected Advanced Adenomas
- Reduction in bowel cancer mortality
- Reduction in bowel cancer incidence
- Increase in five year relative survival rate for bowel cancer
- Benchmarking with international comparisions (smaller variance from OECD average).

- How will you collect data on the participants (and, if appropriate, untreated comparison group) of your programme? Will it be possible to link these data to the Integrated Data Infrastructure (IDI)?\(^7\)

Potential participants will be found from searching the National Health Index (NHI) and primary Health Organisations (PHO) data to identify those between the ages of 60 and 74 years of age. From this search, we will be able to gather potential participants’ addresses and their PHO or general practitioner (GP) details. Participants will sign a consent form agreeing to details about the screening test results being held by the National Coordination Centre (NCC) and shared with their PHO or GP. If the participant is not registered with a PHO or GP, they will be assisted to register.

Once on the NBSP database, the NCC will be able to track their progress through the patient pathway, such as returned kits, testing completed, outcome communicated, referred for colonoscopy, colonoscopy booked, colonoscopy attended, colonoscopy result etc.

Impact evaluation method:
- Will you form a plausible comparison group of ‘untreated’ people (households/businesses/rivers or whatever the target group is) so that you can attribute changes in outcomes as causal effects of your programme or policy (ie, above and beyond a counterfactual of no intervention)?

In the roll out stage, there will be a plausible comparison group of ‘untreated’ people. These people will be within the eligible age range for NBSP, but reside in a DHB that is not yet offering screening. We will also be able to compare data collected from the

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\(^5\) More information on this impact evaluation plan is available in the September 2017 Budget Guidance Section 4.

\(^6\) TNM is the classification of Malignant Tumours with T describing the size of the original tumour, N describing the nearby lymph nodes, and M describing the distant metastasis (spread of cancer from one part of the body to another part).

NBSP with data collected from the bowel screening pilot, which will support the Ministry to refine programme design assumptions, such as the cut-off level for the FIT, and/or age-range.

The dis-benefits that need to be mitigated are:

- Anxiety arising from participating in the NBSP (for some participants)
- Adverse physical health outcomes from colonoscopy and the screening process (for some participants)
- Widening of the equity gap for bowel cancer mortality and survival rates.
  - Are there any important caveats/weaknesses of your methodology, and how will you deal with these.

The NBSP team will work to mitigate the potential inequitable uptake of the NBSP across different ethnic groups, levels of deprivation, and access to the service based on location of the participant. Bowel screening needs to be accessible to those people eligible to receive the service, and this will be assessed via regular monitoring of participation rates by ethnic group, geographic location and deprivation group.

- Are there any ethical issues with how you will evaluate this programme, and how will you address these?

It is very important that the benefits of the NBSP outweigh the harms it may introduce. Physical harms like the perforation of the colon or bleeding resulting from colonoscopy will be monitored across all DHBs to ensure that any adverse events are within an agreed toleration limit. Measures of anxiety or psychological harm for participants are complex and therefore it is not easy to document that these harms have been minimised. The NBSP team will therefore monitor events that can introduce high levels of anxiety, namely unacceptable wait times and incorrect diagnosis, as proxy measures for anxiety.

- Have you contacted your research, evaluation, or analytics team for comment on this evaluation plan?

Other forms of evaluation and monitoring:

- Will you be undertaking any qualitative or process evaluation (how and how well the initiative is delivered) and what will this involve?

Funding of evaluation

- How will you fund the evaluation and how much do you expect it to cost (including design of evaluation, collection of data, analysing the results, writing up findings and publishing results)?

Budget 2018 Option 1 includes: [s9(2)(f)(iv)] for the independent evaluation of the NBSP roll out.

Budget has yet to be allocated to the full NBSP benefits realisation evaluation, but this is not expected to be commissioned before 2030.

Completion dates, publication, and dissemination of findings to key stakeholders

- When will you complete your evaluation by? When will you release your results publicly? Will you update this process, eg, initial evaluation, long term follow-up, replication etc.

Monitoring of short term benefits (cancer extent at diagnosis) and rates of advanced adenomas per colonoscopy will be monitored and reported on quarterly or biannually via publication on the Ministry of Health website.

Long term benefits (colorectal cancer mortality rates, incidence rates, and relative five-year survival rates) will be monitored and published from approximately 2030.

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1 Ministry of Health Interim Evaluation Report of the Bowel Screening Pilot: Screening Round One 24 February 2015
3 Ministry of Health 2015, New Zealand Cancer Registry
4 Cancer, Comorbidity and Care: Key findings from the C3 (Quantitative) Study, http://www.otago.ac.nz/wellington/otago087851.pdf
6 Draft: The cost effectiveness of bowel cancer screening in New Zealand: a cost-utility analysis based on pilot results. Sapere research group, 23 May 2016