

Development and valuation of health states for HPV-associated cancers

On line Technical Appendix

Accompanying the manuscript

“Quality of life valuations of HPV-associated cancer health states by the general population”

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13 December, 2011

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Health state descriptions

Anal cancer

The anal cancer health state describes a patient who had been diagnosed with stage I-III anal cancer and had been treated with chemoradiation (Scenario A).

Approximately 90% of anal cancer presents as Stages I–III [1] and the NCCN Guidelines states that chemoradiation is the only primary treatment for localised cancer of the anal canal [2]. Other possible, and more invasive, treatments for anal cancer were not described; < 5% patients with anal cancer would have abdominoperineal resection [3]. Also, curative surgery for localised anal cancer was not described.

The long term consequences for anal cancer are related to the side effects of chemoradiation and include symptoms resulting from damage to the bowel and bladder area as well as side effects that impact sexuality [4,5] and physical and social activities [6].

Scenario A

WHAT HAS HAPPENED (BACKGROUND INFORMATION ONLY)

You have been diagnosed and treated for a tumour in your anus.

The treatment involved radiation therapy and chemotherapy. The radiation treatments were given 5 days a week for a period of five weeks or so. Chemotherapy drugs were given by injection at the beginning and end of the radiation therapy. During and immediately after the five week treatment you experienced soreness around the anus, pain and discomfort during bowel movements and irritation of the bladder. You also experienced tiredness, nausea and diarrhoea.

HEALTH STATE TO VALUE

HOW YOU ARE NOW

Since recovering from the treatment you continue to experience diarrhoea. Overall, you feel less well than before you had the tumour and experience more tiredness and nausea than previously. The impact of your tumour and treatment has meant that you cannot do as much physically as before and you have a reduced number of social activities you can participate in.

You also experience decreased sexual enjoyment

Women: you experience vaginal shrinkage and dryness.

Men: you experience difficulty in achieving and maintaining an erection.

You attend appointments two to three times a year for five years to check for any recurrence of the cancer. At these appointments you will have a digital rectal examination where the doctor will insert a gloved finger into your anus to feel for any changes. You will also need to have an anoscopy where the doctor will use the anoscope to view the anal lining.

Oropharyngeal cancer

The oropharyngeal cancer health state describes a patient who has been diagnosed with stage II-III oropharyngeal cancer and has been treated with surgery and/or radiotherapy and/or chemotherapy (Scenario B).

Oropharyngeal cancers include cancer of base of tongue, tonsil and other oropharynx [7,8]. Base of tongue and tonsil oropharyngeal cancers represent the majority of oropharyngeal cancers and 90% of these present as Stages II and III [7,9].

Treatment for oropharyngeal cancer is usually multimodal [8]. In an assessment of 548 patients with stage I - IV oropharyngeal squamous cell carcinoma from ten Australian centres: 10.8% had surgery alone, 18.9% had chemoradiation, 14% radiotherapy alone and 55.8% had surgery followed by post-operative radiotherapy (Dr Angela Hong, Clinical Associate Professor, Medicine, Central Clinical School, Radiation Oncologist at Royal Prince Alfred Hospital personal communication).

Given the major differences in the treatment pathways for patients with oropharyngeal cancer it was decided to provide a conservative health state description for the long term effects of the treatment. As neck dissection is common, the neck stiffness resulting from this was included, but any long term disfigurement from surgery was not included. Similarly, the data did not support the description of the use of a permanent feeding tube as valid for the health state [10-13].

For the majority of patients undergoing neck dissection and surgery and/or radiotherapy and/or chemotherapy, long term side effects include occasional pain, difficulty swallowing and chewing, dry throat/mouth, weight loss and neck stiffness, as well as an impact on physical and social activities [14-19].

Scenario B

WHAT HAS HAPPENED (BACKGROUND INFORMATION ONLY)

You have been diagnosed and treated for a tumour in the back of your throat.

The treatment over seven weeks or so involved one or more of surgery through the mouth and/or radiotherapy and/or chemotherapy. You were very unwell during this time with pain and difficulty swallowing, eating and talking.

HEALTH STATE TO VALUE

HOW YOU ARE NOW

You have recovered from the immediate effects of the treatment but you still have occasional pain managed with paracetamol.

You find it difficult to chew and swallow so you can only have a soft diet with sauces and gravy and fluids. You prefer not to eat out in public.

Your throat feels dry all the time and your saliva is dry and sticky and difficult to clear. You always carry a bottle of water to sip throughout the day. You are able to be understood but long conversations are difficult.

You have lost weight and your neck is very stiff and difficult to move up and down or side to side.

You take a lot of care with your teeth because you are at increased risk of tooth decay and crumbling.

You get tired easily so you don't do as much physically as before and don't have as many social activities.

You attend appointments two to three times a year for five years to check for any recurrence of the cancer.

Vulvar cancer

The vulvar cancer health state describes a patient who has been diagnosed with Stage I – II vulvar cancer and has been treated with excisional surgery and groin node dissection (Scenario C).

Approximately 66% of vulvar cancer presents as localised cancer [20] and these are predominantly Stage I and Stage II [21]. The National Cancer Institute recommends either radical wide excision with unilateral inguinal and femoral node dissection or radical vulvectomy with bilateral inguinal and femoral node dissection treatment for stage I vulvar cancer, depending on the size of the lesion [22]. Radical wide excision is the most common surgery with 68% also having groin node surgery [21,23].

A health state describing a conservative treatment of vulvar cancer was developed. This health state described the surgical removal of the tumour with margins and the removal of the groin lymph nodes. The inclusion of a description of vulvectomy (including the removal of the clitoris) in the health state was not supported by the literature [21,23]. The long term consequences for surviving after treatment for vulvar cancer include a psychosocial impact on sexual functioning and managing the risk of lymphedema [24,25].

Scenario C

WHAT HAS HAPPENED (BACKGROUND INFORMATION ONLY)

You have been diagnosed and treated for a tumour on your vulva - the outer lip of the area around the vagina.

The treatment involved surgical removal of the tumour plus a wide margin of tissue around the tumour to make sure that all of it is gone. In a separate incision the lymph nodes in your groin were also removed.

Immediately after your surgery, your genital area was very swollen and bruised but it gradually got better. You have had some numbness and tingling in the area but this is gradually getting better.

HEALTH STATE TO VALUE

HOW YOU ARE NOW

The surgery left your clitoris intact but one side of the outer lip of your vagina have been removed which makes this area look very different.

You continue to be embarrassed about the changes to your body. You can still reach orgasm but you don't have as sex as often and you are not as satisfied with your sexual relationship with your partner.

You do not experience any problems with passing urine.

As a result of your treatment you remain at risk lymphedema (swelling) in your legs and groin area. You have to be very careful not to get any cuts on your feet or legs, and at the first sign of swelling you have to go to the doctor and have the swelling managed with massage and tight stockings.

You attend appointments two to three times a year for five years to check for any recurrence of the cancer.

Vaginal cancer

The vaginal cancer health state describes a patient who has been diagnosed with Stage I vaginal cancer and treated with radiotherapy, chemotherapy and lymph node dissection (Scenario D).

Approximately half of vaginal cancer cases present as localised cancer and are predominately Stage I [26,27]. Treatment guidelines recommend radiotherapy - a combination of brachytherapy and external beam radiation therapy together with lymph node dissection [28].

The long term consequences for surviving after vaginal cancer treatment include the direct side effects from radiation damage to the bowel and bladder area as well as side effects that impact sexuality, fertility and risk of lymphedema [28].

Scenario D

WHAT HAS HAPPENED (BACKGROUND INFORMATION ONLY)

You have been diagnosed and treated for a tumour on the head of your penis.

The treatment involved laser surgery to remove the tumour. There is some scarring but your penis looks pretty much like it used to.

HEALTH STATE TO VALUE

HOW YOU ARE NOW

You recovered well and are generally satisfied with the result of the surgery. You are able to achieve an erection and reach orgasm and ejaculate during intercourse or with sexual stimulation. You continue to enjoy your sexual relationship with your partner.

There is no problem with passing urine.

You inspect yourself frequently and also attend appointments two to four times a year for five years to check for any recurrence of the cancer

Penile cancer

The penile cancer health state describes a patient who has been diagnosed with Stage I penile cancer and has been treated with penile preserving laser surgery (Scenario E).

The majority (62%) of penile cancer presents as localised and the most common site is the glans penis [29]. European Association Urology Guidelines recommend that early stage penile cancer is treated with laser surgery, wide local excision, glans resurfacing or resection, depending on the location of the tumour[30]. Leijte et al. report that of patients being treated with penile-preserving therapy, 70% underwent laser therapy [31]. The health state description was developed to reflect this outcome rather than the more invasive treatments such as partial or complete penectomy.

The long term side effects of the treatment for penile cancer were derived from the International Consultation on Penile Cancer [32]. Conservative treatment such as laser therapy produces few side effects with over 70% patients reporting high levels of sexual interest, enjoyment and satisfaction. Others report satisfactory cosmetic results and unaltered erectile function.

Scenario E

WHAT HAS HAPPENED (BACKGROUND INFORMATION ONLY)

You have been diagnosed and treated for a tumour on the head of your penis.

The treatment involved laser surgery to remove the tumour. There is some scarring but your penis looks pretty much like it used to.

HEALTH STATE TO VALUE

HOW YOU ARE NOW

You recovered well and are generally satisfied with the result of the surgery. You are able to achieve an erection and reach orgasm and ejaculate during intercourse or with sexual stimulation. You continue to enjoy your sexual relationship with your partner.

There is no problem with passing urine.

You inspect yourself frequently and also attend appointments two to four times a year for five years to check for any recurrence of the cancer

Standard gamble questionnaire

All participants were first taken through a practice standard gamble valuation of an unrelated health state (back pain). They then undertook the valuation of the five HPV-associated cancer health states in random order.

The standard gamble was delivered using 10% incremental changes from 100% to 0%. The responses were alternated starting with 100% chance of perfect health followed by living in the health state or a 100% chance of death. Following this choice, participants were asked if they would gamble a 10% chance of death to move to perfect health and this was alternated until the choice was 50/50.

All participants were presented with the same initial choice of 100% chance of perfect health and the same order of alternating values.

The standard gamble questionnaire for the anal cancer health state is shown below as an example.

VALUING HEALTH STATES

This section contains five (5) health states.

In this section you are asked to value each scenario. For each scenario there are two questions. Please read each question carefully.

Scenario A

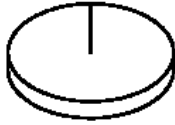



I'd like you to ignore your present state of health and instead try to imagine that you have to make a choice between two types of health states in which you could live. In this case you will live in the health states for the rest of your life. Please take a few moments to read the scenarios. Please only value the part of the health state that relates to how you are now.








Scenario A	PH
<p>WHAT HAS HAPPENED (BACKGROUND INFORMATION ONLY) You have been diagnosed and treated for a tumour in your anus.</p> <p>The treatment involved radiation therapy and chemotherapy. The radiation treatments were given 5 days a week for a period of five weeks or so. Chemotherapy drugs were given by injection at the beginning and end of the radiation therapy. During and immediately after the five week treatment you experienced soreness around the anus, pain and discomfort during bowel movements and irritation of the bladder. You also experienced tiredness, nausea and diarrhoea.</p> <p style="text-align: center;">HEALTH STATE TO VALUE</p> <p>HOW YOU ARE NOW Since recovering from the treatment you continue to experience diarrhoea. Overall, you feel less well than before you had the tumour and experience more tiredness and nausea than previously. The impact of your tumour and treatment has meant that you cannot do as much physically as before and you have a reduced number of social activities you can participate in.</p> <p>You also experience decreased sexual enjoyment Women: you experience vaginal shrinkage and dryness. Men: you experience difficulty in achieving and maintaining an erection.</p> <p>You attend appointments two to three times a year for five years to check for any recurrence of the cancer. At these appointments you will have a digital rectal examination where the doctor will insert a gloved finger into your anus to feel for any changes. You will also need to have an anoscopy where the doctor will use the anoscope to view the anal lining.</p>	<p>You have no health problems and none of the symptoms in Scenario A</p>

Scenario A

QUESTION 1

For sub-questions (a) through (k), please consider which alternative (A or PH) you would prefer.
Mark the box that corresponds with the alternative you would prefer.

Choose to be in the current health state for the rest of your life		Take a gamble on a treatment that may return you to perfect health or result in immediate death	
Alternative A	Alternative A	Alternative PH	Alternative PH
	Remain in Scenario A for the rest of your life.	A therapy with a chance of gaining the best possible health state (perfect health) immediately and risk of attaining death .	
a)	<input type="checkbox"/> <p>100% certainty that you will remain in the health state described in Scenario A for the rest of your life</p>	<input type="checkbox"/> <p>100% chance of perfect health (non-shaded)</p>  <p>0% risk of Death (shaded)</p>	
b)	<input type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input type="checkbox"/> <p>0% chance of perfect health (non-shaded)</p>  <p>100% risk of Death (shaded)</p>	
c)	<input type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input type="checkbox"/> <p>90% chance of perfect health (non-shaded)</p>  <p>10% risk of Death (shaded)</p>	
d)	<input type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input type="checkbox"/> <p>10% chance of perfect health (non-shaded)</p>  <p>90% risk of Death (shaded)</p>	

Choose to be in the current health state for the rest of your life	Take a gamble on a treatment that may return you to perfect health or result in immediate death
Alternative A	Alternative PH
<p>e)</p> <input data-bbox="119 347 194 425" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 336 842 414" type="checkbox"/> <p>80% chance of perfect health (non-shaded)</p>  <p>20% risk of Death (shaded)</p>
<p>f)</p> <input data-bbox="129 571 204 649" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 593 842 672" type="checkbox"/> <p>20% chance of perfect health (non-shaded)</p>  <p>80% risk of Death (shaded)</p>
<p>g)</p> <input data-bbox="129 817 204 896" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 817 842 896" type="checkbox"/> <p>70% chance of perfect health (non-shaded)</p>  <p>30% risk of Death (shaded)</p>
<p>h)</p> <input data-bbox="129 1052 204 1131" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 1064 842 1142" type="checkbox"/> <p>30% chance of perfect health (non-shaded)</p>  <p>70% risk of Death (shaded)</p>
<p>i)</p> <input data-bbox="129 1299 204 1377" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 1299 842 1377" type="checkbox"/> <p>60% chance of perfect health (non-shaded)</p>  <p>40% risk of Death (shaded)</p>
<p>j)</p> <input data-bbox="142 1500 217 1579" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 1534 842 1612" type="checkbox"/> <p>40% chance of perfect health (non-shaded)</p>  <p>60% risk of Death (shaded)</p>
<p>k)</p> <input data-bbox="142 1747 217 1825" type="checkbox"/> <p>100% certainty that you will remain in Scenario A for the rest of your life</p>	<input data-bbox="767 1758 842 1836" type="checkbox"/> <p>50% chance of perfect health (non-shaded)</p>  <p>50% risk of Death (shaded)</p>

Scenario A

Question 2

2A. If you were not willing to take even a TEN percent (10%) risk of Death, is there any amount of risk you would be willing to take? (If yes, please write down what percent (%) of risk you would be willing to take.)

2B. If you were not willing to take even a TEN percent (10%) risk of Death, please would you explain your main reason/s why in the space provided below.

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