

# Testing the addition of new treatments to standard treatment in prostate cancer that has spread to other areas of the body

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## Plain English summary of protocol

<https://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/a-trial-looking-at-new-ways-to-improve-treatment-for-prostate-cancer-that-has-spread-stampede2>

### Background and study aims

STAMPEDE2 is a clinical trial comparing two new treatments with standard of care in people with prostate cancer that has spread to other parts of the body and is responsive to hormone therapy. People from all backgrounds and ethnicities are encouraged to take part and multiple hospitals across the UK are involved. University College London is running the trial.

### Who can participate?

Adult men aged over 18 years old with prostate cancer

### What does the study involve?

Each comparison within the trial has its own control arm where people get the best standard of care (Arm A) versus a research arm where a new treatment is added to the standard of care.

Participants are allocated to an arm by a computerised system with a 50% chance of getting the research treatment.

### Comparison S: Arm A(S) versus Arm S (Stereotactic Ablative Body Radiotherapy (SABR))

- Tests whether giving targeted doses of radiotherapy (SABR) to parts of the body where the cancer has spread slows the spread of the cancer and improves survival. 1920 people will be in this comparison.

### Comparison P: Arm A(P) versus Arm P (PSMA-Lutetium (177Lu-PSMA-617))

- Tests whether giving a radioactive material (177Lu-PSMA-617) that targets prostate cancer cells slows the spread of cancer and improves survival. 1440 people will be in this comparison.

All participants will be followed up with scans and tests to monitor their cancer. Doctors will check for any side effects from the treatments. Treatments will be stopped if side effects are serious, or people no longer wish to take the treatments.

What are the possible benefits and risks of participating?

All participants will have been diagnosed with metastatic prostate cancer that requires treatment as part of SoC. The risks and burdens of taking part in STAMPEDE2 over and above their standard care are listed below. Sites will be trained in discussing all these issues with patients as part of the consent procedure for each comparison:

1. As for many clinical trials, participation can lead to an increased risk of toxicities with research treatments. For cancer trials, there are also toxicities associated with the cancer itself as well as the standard of care therapies. The Patient Information Sheet (PIS) documents the likelihood of toxicities associated with the new research therapies so that patients can decide if they wish to take part. Any emerging symptoms or toxicities for a participant will be managed by the site regardless of whether they are caused by the cancer, the standard therapies or research therapies.
2. Some patients will require more frequent visits to the hospital and this is explained in the PIS. For the majority of the time, patient follow-up visits for the trial will coincide with routine follow-up appointments that occur as a result of the patient receiving their SoC treatments.
3. A small number of additional fitness tests may be required to check eligibility but the majority of the tests will be done as part of routine care for their cancer. For the translational research blood samples, a small amount of additional blood will be taken whilst the patient is having blood collected for their routine care, thus no need for further venepuncture procedures.
4. For patients undergoing 177Lu-PSMA-617 treatment, there will be some restrictions on their lifestyle after each dose is administered. These are outlined in the patient discharge letter which is also uploaded in this submission and will be given to patients after each dose and when they are being consented to participation in Comparison P.
5. Patients participating in the Comparison P Imaging Sub-Study will require additional imaging requirements over standard care including whole-body MRI, PSMA PET/CT and dosimetry tests. These are important for the investigators to confirm that PSMA-Lu treatment is safe and acceptable in patients with hormone-sensitive disease and that toxicities are not substantially elevated over the SoC arm.
6. It is important that the trial participant is aware of the potential risks for any foetus should his partner become pregnant by him whilst he is receiving treatment. Pregnancy in this setting is extremely rare as the ADT hormonal control will make this very unlikely. However, full details have been provided in the PIS and protocol and should any partner become pregnant during the course of the trial we will be required to follow the mother and baby through to full term to record any complications.

Where is the study run from?

Medical Research Council Clinical Trials Unit (MRC CTU) at University College London (UK)

When is the study starting and how long is it expected to run for?

April 2023 to March 2032

Who is funding the study?

1. Advanced Accelerator Applications International S.A Novartis
2. Cancer Research UK
3. MRC UK Research and Innovation
4. Johnson and Johnson (during set-up phase)

Who is the main contact?  
mrcctu.stampede2@ucl.ac.uk

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Prof Louise Brown

**ORCID ID**  
<https://orcid.org/0000-0003-2827-6634>

**Contact details**  
MRC Clinical Trials Unit at UCL Institute of Clinical Trials and Methodology  
90 High Holborn 2nd Floor  
London  
United Kingdom  
WC1V 6LJ  
None available  
l.brown@ucl.ac.uk

**Type(s)**  
Principal investigator

**Contact name**  
Prof Nicholas James

**Contact details**  
Institute of Cancer Research  
The Royal Marsden Hospital  
237 Fulham Road  
London  
United Kingdom  
SW3 6JB  
+44 (0)20 7153 5131  
nick.james@icr.ac.uk

**Type(s)**  
Public

**Contact name**  
Dr Study Team

**Contact details**  
MRC Clinical Trials Unit at UCL  
Institute of Clinical Trials and Methodology  
90 High Holborn 2nd Floor

London  
United Kingdom  
WC1V 6LJ  
None available  
mrcctu.stampede2@ucl.ac.uk

### **Type(s)**

Principal investigator

### **Contact name**

Prof Gert Attard

### **Contact details**

University College London  
Cancer Institute  
72 Huntley St  
London  
United Kingdom  
WC1E 6DD  
None provided  
g.attard@ucl.ac.uk

## **Additional identifiers**

### **Clinical Trials Information System (CTIS)**

2025-522145-21-00

### **Integrated Research Application System (IRAS)**

1006437

### **ClinicalTrials.gov (NCT)**

NCT06320067

### **Protocol serial number**

PR12, IRAS 1006437, CPMS 57467

## **Study information**

### **Scientific Title**

Studying Treatments in patients receiving androgen deprivation therapy (ADT) for Metastatic Prostate Cancer: Evaluation of Drug and radiation Efficacy: A 2nd multi-arm multi-stage randomised controlled trial (STAMPEDE2)

### **Acronym**

STAMPEDE2

### **Study objectives**

Current study objectives as of 11/08/2025:

The main objective of the trial is to determine whether the addition of one of two new therapies (stereotactic ablative body radiotherapy [SABR] or PSMA-Lu) can slow down the progression of

prostate cancer (PCa) and thus lengthen life for men. Slowing down the progression of PCa means it takes longer for existing sites of cancer in the body to get larger or for new sites of cancer to develop in the body away from the prostate. It is hypothesised that if the addition of these new treatments to the standard of care (SOC) can slow down the progression of PCa, this should lengthen the lives of those receiving these new treatments compared to those who are receiving SOC alone. A randomised control trial is proposed that randomly gives half of the participants the new treatment in addition to SOC whilst the other half gets the SOC alone. The participants are then followed to see if the cancer progresses more slowly with the new treatments and whether this means that the participants live longer.

The study will investigate if the new treatments are safe and tolerable for those who receive them. This is done by collecting data on side effects and seeing if these are unacceptably high in the group receiving the new treatments. Participants will be asked to complete quality-of-life questionnaires to understand the impact of any treatment side effects or the cancer itself. Data will also be collected on other kinds of PCa progression which might mean that the participant's cancer is becoming resistant to the therapies they are receiving. This can lead to hormone levels in the body such as testosterone or prostate-specific antigen (PSA) starting to rise and becoming difficult to control using standard hormone therapies. These often act as early indicators that the cancer is growing again. Collecting data on them is therefore important as it prompts clinicians to send participants for imaging to check for any changes in the cancer.

#### Previous study objectives:

The main objective of the trial is to determine whether the addition of one of 3 new therapies (stereotactic ablative body radiotherapy [SABR], PSMA-Lu or niraparib with abiraterone) can slow down the progression of prostate cancer (PCa) and thus lengthen life for men. Slowing down the progression of PCa means it takes longer for existing sites of cancer in the body to get larger or for new sites of cancer to develop in the body away from the prostate. It is hypothesised that if the addition of these new treatments to the standard of care (SOC) can slow down the progression of PCa, this should lengthen the lives of those receiving these new treatments compared to those who are receiving SOC alone. A randomised control trial is proposed that randomly gives half of the participants the new treatment in addition to SOC whilst the other half gets the SOC alone. The participants are then followed to see if the cancer progresses more slowly with the new treatments and whether this means that the participants live longer.

The study will investigate if the new treatments are safe and tolerable for those who receive them. This is done by collecting data on side effects and seeing if these are unacceptably high in the group receiving the new treatments. Participants will be asked to complete quality-of-life questionnaires to understand the impact of any treatment side effects or the cancer itself. Data will also be collected on other kinds of PCa progression which might mean that the participant's cancer is becoming resistant to the therapies they are receiving. This can lead to hormone levels in the body such as testosterone or prostate-specific antigen (PSA) starting to rise and becoming difficult to control using standard hormone therapies. These often act as early indicators that the cancer is growing again. Collecting data on them is therefore important as it prompts clinicians to send participants for imaging to check for any changes in the cancer.

#### **Ethics approval required**

Ethics approval required

#### **Ethics approval(s)**

approved 20/09/2023, London – Harrow Research Ethics Committee (Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 (0)207 104 8154; harrow.rec@hra.nhs.uk), ref: 23/LO/0415

## **Study design**

Randomized-controlled open-label parallel-group platform study

## **Primary study design**

Interventional

## **Study type(s)**

Efficacy, Safety, Treatment

## **Health condition(s) or problem(s) studied**

Metastatic hormone-sensitive prostate cancer

## **Interventions**

Current interventions as of 11/08/2025:

STAMPEDE2 is a platform trial testing the addition of experimental treatments to Standard of Care (SoC) for metastatic hormone-sensitive prostate cancer (mHSPC). Each research question is called a “comparison” and within each comparison, there are two randomised arms. The STAMPEDE2 protocol includes two research comparisons with letter nomenclature based on the first letter of the research treatment:

### **Comparison S:**

Stereotactic Ablative Body Radiotherapy (SABR) in men whose metastatic disease is eligible for SABR and receiving ADT + ARPI + radiotherapy (RT) to the primary +/- pelvic lymph nodes +/- docetaxel as SoC

Experimental Arm S: SoC + SABR  
Active Comparator Arm A(S): SoC

### **Comparison P:**

Prostate Specific Membrane Antigen–177 Lutetium (177Lu-PSMA-617) in men whose metastatic disease is ineligible for SABR (comparison S) and receiving ADT + ARPI +/- RT to the primary +/- pelvic lymph nodes +/- docetaxel as SoC

177Lu-PSMA-617 is an injectable therapy that directly kills cancer cells through radiation. It achieves targeted treatment to the cancer cells because once injected, it finds its way only to cells which display a protein called prostate-specific membrane antigens (PSMA). The amount of radiation is carefully selected to deliver damage and resulting death of the cancer cells whilst minimising damage to healthy tissue.

Experimental Arm P: SoC + 177Lu-PSMA-617  
Active Comparator Arm A(P): SoC

Randomisation will be performed using a 1:1 allocation ratio using minimisation with a random element based upon various stratification factors. All men will be followed up over a number of years and will have imaging to determine whether their cancer has become worse or hormone levels have reached a point that other therapies might need to be considered.

Previous interventions:

STAMPEDE2 is a platform trial testing the addition of experimental treatments to Standard of Care (SoC) for metastatic hormone-sensitive prostate cancer (mHSPC). Each research question is called a “comparison” and within each comparison, there are 2 randomised arms. The STAMPEDE2 protocol includes 3 research comparisons with letter nomenclature based on the first letter of the research treatment:

#### Comparison S

Stereotactic Ablative Body Radiotherapy (SABR) in men whose metastatic disease is eligible for SABR and receiving ADT + ARSI + radiotherapy (RT) to the primary +/- pelvic lymph nodes +/- docetaxel as SoC

Experimental Arm S: SoC + SABR

Active Comparator Arm A: SoC

#### Comparison P

Prostate Specific Membrane Antigen–177 Lutetium (177Lu-PSMA-617) in men whose metastatic disease is ineligible for SABR (comparison S) and receiving ADT + ARSI +/- RT to the primary +/- pelvic lymph nodes +/- docetaxel as SoC

177Lu-PSMA-617 is an injectable therapy that directly kills cancer cells through radiation. It achieves targeted treatment to the cancer cells because once injected, it finds its way only to cells which display a protein called prostate-specific membrane antigens (PSMA). The amount of radiation is carefully selected to deliver damage and resulting death of the cancer cells whilst minimising damage to healthy tissue.

Experimental Arm P: SoC + 177Lu-PSMA-617

Active Comparator Arm A: SoC

#### Comparison N

Niraparib with abiraterone acetate plus prednisolone (Nira-AA+P) versus apalutamide in men with deleterious alterations in genes involved in homologous recombination repair and recently started long-term ADT +/- RT to the primary +/- pelvic lymph nodes +/- docetaxel +/- SABR +/- 177Lu-PSMA-617. Prior randomisation in comparisons S or P is permitted.

Experimental Arm N: SoC + Nira-AA+P

Active Comparator Arm A (N): SoC + Apalutamide

STAMPEDE2 allows co-enrolment into Comparison N for the 10-15% of men who test biomarker-positive and who are already randomised into either Comparison S or P. All the comparisons are unblinded and eligible men can choose to participate in just one comparison if preferred.

Randomisation will be performed using a 1:1 allocation ratio using minimisation with a random element based upon various stratification factors. All men will be followed up over a number of years and will have imaging to determine whether their cancer has become worse or hormone levels have reached a point that other therapies might need to be considered.

#### Intervention Type

Drug

#### Phase

Not Applicable

## **Drug/device/biological/vaccine name(s)**

Stereotactic ablative body radiotherapy (SABR), 177Lu-PSMA-617

## **Primary outcome(s)**

Corrected 06/02/2026:

Current primary outcome measure as of 11/08/2025:

For both Comparisons S and P, the primary outcome is Overall Survival (OS) defined as time from randomisation to death from any cause.

2.1. Comparison S:

2.1.2. OS data maturity requires that 289 deaths have occurred in the control arm and this is expected to occur 79 months (6.6 years) after First Patient First Visit (FPFV).

2.2. Comparison P:

2.2.2. OS data maturity requires that 286 deaths have occurred in the control arm and this is expected to occur 59 months (5 years) from First Patient First Visit (FPFV).

If necessary, NHS Registry data will be used for events beyond trial closure.

Previous primary outcome measure:

All three comparisons will use dual-primary outcome measures of:

1. Radiological progression-free survival (rPFS), defined as the time from randomisation to metastatic cancer progression or death from any cause. The definition for rPFS requires at least one of the following four criteria to be met:

1.1. Progression of bone metastases as defined by PCWG3

1.2. Radiological metastatic progression by RECIST v1.1

1.3. Symptomatic skeletal-related events secondary to cancer progression

1.4. Death from any cause.

2. Overall survival (OS), defined as the time from randomisation to death from any cause.

2.1. Comparison S:

2.1.1. rPFS is expected to report when 231 rPFS events have occurred in the control arm ~4.8 years from FPFV

2.1.2. OS is expected to report after 341 deaths have occurred in the control arm ~7.8 years from FPFV

2.2. Comparison P:

2.2.1. rPFS is expected to report when 228 rPFS events have occurred in the control arm ~3.5 years from FPFV

2.2.2. OS is expected to report after 337 deaths have occurred in the control arm ~5.2 years from FPFV

2.3. Comparison N:

2.3.1. rPFS is expected to report when 86 rPFS events have occurred in the control arm ~5.4 years from FPFV

2.3.2. OS is expected to report when 210 deaths have occurred in the control arm ~14.8 years from FPFV

If necessary, NHS Registry data will be used for events beyond trial closure

## **Key secondary outcome(s)**

Current secondary outcome measures as of 11/08/2025:

Analyses will also be undertaken for the following secondary outcomes:

1. Failure-free survival (FFS) reported alongside the primary outcome measures when those are mature enough for reporting
2. Radiographic Progression-Free-Survival (rPFS)
3. Prostate cancer-specific survival (PCSS) reported alongside the primary outcome measures when those are mature for reporting
4. Safety through reporting of SAEs reported as part of annual DSUR reports and in any publications for the primary and secondary outcomes
5. Toxicity using CTCAE classification data will be reviewed as part of closed IDMC meetings throughout the trial. Results for these outcomes will be reported alongside the primary outcome measures when those are mature for reporting
6. Compliance with randomised allocation data will be reviewed as part of closed IDMC meetings throughout the trial. Results for these outcomes will be reported alongside the primary outcome measures when those are mature for reporting.
7. Resource use for cost-effectiveness assessment
8. EQ-5D-5L questionnaire for cost-effectiveness assessment will be collected at baseline, 3 months and then 6-monthly until death or end of the trial. Reporting of these results will be specific to each comparison and likely to coincide with the reporting of the primary outcomes

Additional more detailed FACT-RNT Quality of life (QoL) questionnaires will be collected in patients taking part in the Imaging sub-study. Patient Reported Outcome Measures (PROMS) have not been included in this first version of the protocol but will be added later as a substantial amendment.

Previous secondary outcome measures:

Analyses will also be undertaken for the following secondary outcomes:

1. Failure-free survival (FFS) reported alongside the primary outcome measures when those are mature enough for reporting
2. Prostate cancer-specific survival (PCSS) reported alongside the primary outcome measures when those are mature for reporting
3. Safety through reporting of SAEs reported as part of annual DSUR reports and in any publications for the primary and secondary outcomes
4. Toxicity using CTCAE classification data will be reviewed as part of closed IDMC meetings throughout the trial. Results for these outcomes will be reported alongside the primary outcome measures when those are mature for reporting
5. Compliance with randomised allocation data will be reviewed as part of closed IDMC meetings throughout the trial. Results for these outcomes will be reported alongside the primary outcome measures when those are mature for reporting.
6. EQ-5D-5L questionnaire for cost-effectiveness assessment will be collected at baseline, 3 months and then 6-monthly until death or end of the trial. Reporting of these results will be specific to each comparison and likely to coincide with the reporting of the primary outcomes

Additional more detailed Quality of life (QoL) instruments as well as other Patient Reported Outcome Measures (PROMS) will be collected in a subset of patients. This is not included in this first version of the protocol but will be added later as a substantial amendment.

**Completion date**

01/03/2032

**Eligibility**

## Key inclusion criteria

Current inclusion criteria as of 11/08/2025:

General Inclusion Criteria:

1. At least 18 years old.
2. Histological confirmation of prostate adenocarcinoma or a strong clinical suspicion of prostate cancer with a plan to confirm the diagnosis formally before any future randomisation.
3. Confirmation of metastatic site(s) on CT/MRI and either bone or PET scan. Patients with metastatic disease meeting any of the following criteria are eligible:
  - Metastatic disease to the bone (in any distribution).
  - Non-regional lymph node metastases of any size or distribution. Lymph nodes that are only visible on PET will not be eligible as sites of metastasis. Note: If lymph nodes are the only site of metastases, then at least one must be at least 1.5cm in short axis AND outside of the pelvis.
  - Visceral metastases of any size or distribution.
4. Clinical presentation is:
  - A. de novoOR
  - B. relapsed with:
    - (1) continuing hormone sensitivity in the opinion of the investigator, and;
    - (2) all hormone treatments (e.g., ADT and ARPI) will have been completed  $\geq 2$  years prior to any future randomisation into any of the comparisons, and;
    - (3) will have received  $\leq 3$  years total of ADT at the point of randomisation into any comparison.Note: the dates will be checked again at randomisation. It is the responsibility of the investigator to account for the time between registration and randomisation into any comparison.
5. Long-term androgen deprivation therapy (ADT) has started or there is an intention to start for a minimum of 2 years.
6. WHO Performance Status 0-2 or, if WHO Performance Status 3, deemed to be due to metastatic burden and expected to improve with ADT. Note: Improvement to WHO status 0-2 will be checked again at randomisation into any subsequent comparison.  
Note: For WHO performance status definitions see Appendix 1.
7. Willing and able to comply with trial treatments.
8. Patient has signed informed consent form for registration into the STAMPEDE2 Trial platform.

### Eligibility Criteria For Comparison S Testing SABR:

Patients who meet the general eligibility criteria can be considered for the SABR comparison. Recruiting sites will assess metastatic disease burden using CT/MRI scans and baseline Tc-99m bone scan or PET scan to assess the number of metastatic bone and non-regional lymph node foci, and presence of visceral metastases. Patients will be classified as either 'SABR-eligible' or 'SABR-ineligible' using the following definition.

### Definition of SABR-eligible disease:

Patients will be classified as SABR-eligible if they meet all the following criteria:

- 1-5 metastatic lesions (including either bone and/or non-regional lymph node sites).
- Clinician determination that metastatic lesions are considered suitable for SABR on technical grounds (such as proximity of dose-limiting normal tissue or tumour volume). Note: Clinical determination can consider next-generation imaging (e.g., PSMA PET-CT or WBMRI) where available. It is the investigator's responsibility to consider the impact of any findings on the suitability of SABR for the patient. Any next-generation imaging used prior to randomisation should be declared at randomisation so that it can be used as a stratification factor.
- Absence of visceral metastases.

Otherwise, patients will be classified as SABR-ineligible.

In addition to the general registration eligibility criteria, they need to meet all the following criteria for entry into Comparison S:

1. Patient still meets all eligibility criteria for registration in Section 4.4.
2. Histological confirmation of prostate adenocarcinoma.
3. Newly diagnosed (de novo) metastatic disease that is considered eligible for SABR according to the above definition.
4. Patient has started ADT and randomisation is  $\leq 12$  weeks since the start of ADT.
5. WHO performance status 0-2 (see Appendix 1).
6. Patient has provided signed informed consent for participation in Comparison S.

Eligibility Criteria For Comparison P Testing 177LU-PSMA-617:

In addition to the general eligibility criteria, patients need to meet the following criteria for entry into Comparison P:

1. Patient still meets all eligibility criteria for registration.
2. Histological confirmation of prostate adenocarcinoma.
3. Patient meets the definition of SABR-ineligible disease.
4. Patients must have adequate organ function as indicated by blood tests within 4 weeks prior to randomisation:
  - Bone marrow function
    - a. ANC  $\geq 1.5 \times 10^9/L$
    - b. Platelets  $\geq 100 \times 10^9/L$
    - c. Haemoglobin  $\geq 9g/dL$ , independent of transfusions for at least 28 days
  - Hepatic function
    - a. Total bilirubin  $\leq 2 \times ULN$ . For patients with Gilbert's Syndrome  $\leq 3 \times ULN$  is permitted.
    - b. AST and/or ALT performed with all results  $\leq 3 \times ULN$  or  $\leq 5 \times ULN$  for patients with liver metastasis
  - Renal Function
    - a. EGFR  $\geq 50 mL/min/1.73m^2$  calculated using the MDRD formula
    - b. Albumin  $\geq 25g/L$
5. Patient has started ADT and randomisation is  $\leq 12$  weeks since the start of current ADT.
6. If relapsed disease, prior LHRH agonist/antagonist with or without first generation anti-androgen use in the adjuvant/neo-adjuvant setting, hormone treatment must have been discontinued  $\geq 2$  years prior to randomisation AND must not have exceeded a total of  $>3$  years of therapy AND must not have shown disease progression within 12 months of completing adjuvant/neo-adjuvant therapy.
7. WHO performance status 0-2 (see Appendix 1).
8. Patient has provided signed informed consent for participation in Comparison P.

Previous inclusion criteria:

General inclusion criteria:

1. At least 18 years old
  2. Histological confirmation of prostate adenocarcinoma on a biopsy of the prostate or metastases, or a strong clinical suspicion of prostate cancer with consent from the patient and a plan to undergo a confirmatory tissue biopsy.
  3. Confirmation of metastatic site(s) on CT or bone scan. Patients with metastatic disease meeting the following criteria are eligible:
    - Metastatic disease to the bone (in any distribution) visible on  $^{99}Tc$ -Bone Scan
- AND/OR
- Non-regional lymph node metastases of any size or distribution. Lymph nodes that are only

visible on PET will not be eligible as sites of metastasis.

Note: If lymph nodes are the only site of metastases, then at least one must be at least 1.5cm in short axis AND outside of the pelvis  
AND/OR

- Visceral metastases of any size or distribution

4. De novo presentation or, if relapsed, all hormonal treatments (ADT and ARSI) will have been completed  $\geq 1$  year prior to any future randomisation into any of the comparisons and have received  $\leq 1$  year total of ADT. This will be checked again at randomisation.

5. If not already started, there must be an intention to start long-term androgen deprivation therapy (ADT).

6. WHO performance status 0-2 (For WHO performance status definitions, see Appendix 1) or if WHO Performance Status 3, deemed to be due to metastatic burden and expected to improve with ADT.

7. Willing and able to comply with trial treatments.

8. Patient has signed informed consent form for registration into the STAMPEDE2 Trial platform.

### Eligibility for Molecular Biomarker Testing

In addition to the general eligibility criteria patients need to meet the following criteria for biomarker testing:

1. If the patient has already commenced ADT, check that if there is adequate time for the biomarker test to be returned in time for randomisation into Comparison N no more than 6 months after starting ADT.

2. Have not yet commenced ARSI. If this has already started, patients will not be eligible for Comparison N or prospective biomarker testing, but they can still be considered for Comparisons S and P.

3. Have a tumour block that is available for testing and transferring to the central UCL biomarker lab. The location details for this block will be needed at the block request stage. Where patients have a confirmed alteration in one of the genes in the biomarker panel using a local regulatory cleared biomarker test, this can be used to assess biomarker status.

4. There are no contraindications to niraparib, abiraterone acetate, prednisolone or apalutamide according to the reference safety information.

5. Patient has provided signed informed consent for use of tissue for testing (if central testing is required).

### Eligibility criteria for comparison S testing SABR

Patients who meet the general eligibility criteria can be considered for the SABR comparison. Recruiting sites will assess metastatic disease burden using conventional imaging (baseline Tc-99m bone scintigraphy and CT/MRI scans) to assess the number of metastatic bone and non-regional lymph node foci, and the presence of visceral metastases. Patients will be classified as either 'SABR-eligible' or 'SABR-ineligible' using the following definition.

#### Definition of SABR-eligible disease:

Patients will be classified as SABR-eligible if they meet all the following criteria:

- 1-5 metastatic lesions (including either bone and/or non-regional lymph node sites) using conventional imaging.

- Clinician determination that metastatic lesions are considered suitable for SABR on technical grounds (such as proximity of dose-limiting normal tissue or tumour volume).

- Absence of visceral metastases.

Otherwise, patients will be classified as SABR-ineligible.

In addition to the general registration eligibility criteria, they need to meet all the following criteria for entry into Comparison S:

### Inclusion criteria

1. Patient still meets all eligibility criteria for registration
2. Newly diagnosed, synchronous (de novo) metastatic disease that is considered eligible for SABR according to the definition
3. Treatment naïve (de novo/synchronous) or minimal prior hormone treatment with:
  - 3.1. If the patient has already started ADT, it must be  $\leq 12$  weeks since the start of the current ADT.
  - 3.2.  $\leq 12$  weeks of luteinizing hormone-releasing hormone (LHRH) agonist/antagonists or bilateral orchiectomy, with or without first-generation anti-androgen (e.g., bicalutamide, flutamide), for metastatic prostate cancer is allowed prior to randomisation. If given, first-generation anti-androgen must be discontinued prior to the start of study therapy or after 28 days, whichever is earliest.
4. WHO performance status 0-2 (see Appendix 1)
5. Patient has provided signed informed consent for participation in Comparison S

### Eligibility criteria for comparison P testing 177LU-PSMA-617

In addition to the general eligibility criteria, patients need to meet the following criteria for entry into Comparison P:

### Inclusion criteria

1. Patient still meets all eligibility criteria for registration
2. Patient meets the definition of SABR-ineligible disease
3. Patients must have adequate organ function as indicated by blood tests within 8 weeks prior to randomisation:
  - 3.1. Bone marrow function
    - 3.1.1. ANC  $\geq 1.5 \times 10^9/L$
    - 3.1.2. Platelets  $\geq 100 \times 10^9/L$
    - 3.1.3. Haemoglobin  $\geq 9g/dL$ , independent of transfusions for at least 28 days
  - 3.2. Hepatic function
    - 3.2.1. Total bilirubin  $\leq 2 \times ULN$ . For patients with Gilbert's Syndrome  $\leq 3 \times ULN$  is permitted.
    - 3.2.2. ALT or AST  $\leq 3 \times ULN$  or  $\leq 5 \times ULN$  for patients with liver metastasis
  - 3.3. Renal Function
    - 3.3.1. EGFR  $\geq 50$  mL/min calculated using the MDRD formula
    - 3.3.1. Albumin  $\geq 25$  g/L
4. Treatment naïve (de novo/synchronous) or minimal prior hormone treatment (metachronous) with:
  - 4.1. If the patient has already started ADT, it must be  $\leq 12$  weeks since the start of the current ADT.
  - 4.2.  $\leq 12$  weeks of luteinizing hormone-releasing hormone (LHRH) agonist/antagonists or bilateral orchiectomy, with or without first-generation anti-androgen (e.g., bicalutamide, flutamide), allowed prior to randomisation. If given, first-generation anti-androgen must be discontinued prior to start of study therapy or after 28 days, whichever is earliest.
  - 4.3. If relapsed, prior LHRH agonist/antagonist with or without first-generation anti-androgen use in the adjuvant/neo-adjuvant setting, hormone treatment must have been discontinued  $> 12$  months prior to randomisation AND must not have exceeded 12 months of therapy AND must not have shown disease progression within 12 months of completing adjuvant/neo-adjuvant therapy.
  - 4.4. WHO performance status 0-2 (see Appendix 1)
  - 4.5. Patient has provided signed informed consent for participation in Comparison P

## Eligibility criteria for comparison N testing NIRAPARIB-AA+P

In addition to the general registration eligibility criteria, patients need to meet the following criteria for randomisation into Comparison N:

### Inclusion criteria

1. Patient still meets all eligibility criteria for registration
2. Biomarker-positive status as defined in Section 9.4.
3. Patient has not yet commenced ARSI therapy (including abiraterone acetate and prednisolone, enzalutamide, apalutamide or darolutamide).
4. Patients must have adequate organ function as indicated by blood tests within 8 weeks prior to randomisation:
  - 4.1. Absolute neutrophil count  $\geq 1.5 \times 10^9/L$
  - 4.2. Haemoglobin  $\geq 9.0$  g/dL, independent of transfusions for at least 28 days
  - 4.3. Platelet count  $\geq 100 \times 10^9/\mu L$
  - 4.4. Serum albumin  $\geq 30$  g/L
  - 4.5. Creatinine  $\leq 2$  x upper limit of normal (ULN)
  - 4.6. Serum potassium  $\geq 3.5$  mmol/L
  - 4.7. Serum total bilirubin  $\leq 1.5 \times$  ULN or direct bilirubin  $\leq 1 \times$  ULN (Note: In participants with Gilbert's syndrome where total bilirubin is  $> 1.5 \times$  ULN, direct bilirubin of  $\leq 1.5 \times$  ULN is permitted)
  - 4.8. AST or ALT  $\leq 3 \times$  ULN
5. Participants who have received prior docetaxel treatment for prostate cancer must meet the following criteria:
  - 5.1. Received  $\leq 6$  cycles of docetaxel therapy
  - 5.2. Received the last dose of docetaxel  $\geq 3$  weeks prior to starting on IMP and  $\leq 3$  months prior to randomisation
  - 5.3. Maintained a response to docetaxel of stable disease or better, by investigator assessment of imaging and/or PSA, prior to randomisation
6. WHO performance status 0-2 (see Appendix 1).
7. Able to swallow the trial treatment tablets whole (clinician determined).
8. Patient has provided signed informed consent for participation in Comparison N.

### Participant type(s)

Patient

### Healthy volunteers allowed

No

### Age group

Mixed

### Lower age limit

18 years

### Upper age limit

100 years

### Sex

Male

### Total final enrolment

0

## Key exclusion criteria

Current exclusion criteria as of 11/08/2025:

General Exclusion Criteria:

1. Clinically and pathologically overt small cell carcinoma.
2. Metastatic brain disease or leptomeningeal disease.
3. Any active malignancies (i.e., progressing or requiring any treatment in the previous 36 months) other than prostate cancer (except non-muscle invasive bladder cancer; non-melanomatous skin cancer or a malignancy that is considered cured with minimal risk of recurrence).
4. Any other medical condition that in the investigator's opinion means the participant is unfit or unsuitable for long-term ADT or the trial treatments in the comparison for which they are being considered.

Exclusion Criteria For Comparison S Testing SABR:

1. Patient has relapsed prostate cancer.
2. Prior radical treatment to the prostate (e.g., radical surgery and/or radiotherapy).
3. Intracranial metastatic disease.
4. Prior treatment to a metastatic site (e.g., radiotherapy, surgery or RFA).
5. Significant or progressive neurological deficit such that emergency (within 24 hours) surgery or radiation required (e.g., metastatic spinal cord compression, or impingement of the cord or any other clinical scenario whereby urgent radiotherapy to the spine is required).
6. Any condition or co-morbidities that, in the judgement of the clinician, preclude procedures required to facilitate radiotherapy delivery, e.g.:
  - a. Disease staging and follow-up.
  - b. Radiotherapy planning procedures.
7. Any condition or co-morbidities that, in the judgement of the clinician, preclude the safe delivery of radiotherapy to the prostate ( $\pm$  pelvic lymph nodes) and/or metastases, e.g., inflammatory bowel disease, significant systemic connective tissue disorder, radiological evidence of idiopathic pulmonary fibrosis).
8. Active malignancy other than prostate cancer within the last 36 months.

Exclusion Criteria For Comparison P Testing  $^{177}\text{Lu}$ -PSMA-617:

1. Prior treatment with any of the following:
  - a. Strontium-89, Samarium-153, Rhenium-186, Rhenium-188, Radium-223
  - b. PSMA-targeted radioligand therapy
2. Symptomatic cord compression, or clinical/radiological findings indicative of impending cord compression.
3. Any condition that precludes raised arms position.
4. Unmanageable bladder outflow obstruction or urinary incontinence. Note: bladder outflow obstruction or urinary incontinence which is manageable and controlled with best available standard of care (incl. drainage, pads) is permitted.
5. Imaging Sub-study only: Contraindication to MRI (e.g., pacemakers, except MRI-compatible pacemakers).

Previous exclusion criteria:

General exclusion criteria

1. Clinically and pathologically overt small cell carcinoma
2. Metastatic brain disease or leptomeningeal disease
3. Any active malignancies (i.e., progressing or requiring any treatment in the previous 36 months) other than prostate cancer (except non-muscle invasive bladder cancer; non-melanomatous skin cancer or a malignancy that is considered cured with minimal risk of

recurrence)

4. Any other medical condition that in the investigator's opinion means the participant is unfit or unsuitable for long-term ARSI or the trial treatments in the comparison for which they are being considered.

Exclusion criteria For comparison S testing SABR

1. Prior radical treatment to the prostate (e.g., radical surgery and/or radiotherapy).
2. Intracranial metastatic disease
3. Prior treatment to a metastatic site (e.g., radiotherapy, surgery or RFA)
4. Significant or progressive neurological deficit such that emergency (within 24 hours) surgery or radiation required (e.g., metastatic spinal cord compression, or impingement of the cord or any other clinical scenario whereby urgent radiotherapy to the spine is required)
5. Any condition or co-morbidities in the judgement of the clinician that precludes procedures required to facilitate radiotherapy delivery e.g.
  - 5.1. Disease staging and follow-up
  - 5.2. Radiotherapy planning procedures
6. Any condition or co-morbidities in the judgement of the clinician that precludes the safe delivery of radiotherapy to the prostate (+/- pelvic lymph nodes) and/or metastases e.g., inflammatory bowel disease, significant systemic connective tissue disorder, radiological evidence of idiopathic pulmonary fibrosis)
7. Active malignancy other than prostate cancer within the last 36 months
8. Contraindication to MRI (e.g., pacemakers, except MRI-compatible pacemakers)

Exclusion criteria For comparison P testing 177LU-PSMA-617

1. Prior treatment with any of the following:
  - 1.1. Strontium-89, Samarium-153, Rhenium-186, Rhenium-188, Radium-223
  - 1.2. PSMA-targeted radioligand therapy
2. Symptomatic cord compression, or clinical/radiological findings indicative of impending cord compression
3. Any condition that precludes raised arms position
4. Unmanageable bladder outflow obstruction or urinary incontinence. (Note: bladder outflow obstruction or urinary incontinence which is manageable and controlled with best available standard of care (incl. drainage, pads) is permitted)

Exclusion criteria For comparison N testing NIRAPARIB-AA+P

1. Prior treatment with a poly ADP ribose polymerase (PARP) inhibitor, radiopharmaceutical or any chemotherapy for prostate cancer other than docetaxel outside the STAMPEDE2 trial.
2. History of adrenal dysfunction.
3. History or current diagnosis of myelodysplastic syndrome (MDS) or acute myeloid leukaemia (AML).
4. Known allergies, hypersensitivity, or intolerance to the excipients of AA, or Nira-AA DAT (refer to the IBs for Nira-AA DAT and AA).
5. Current evidence of any medical condition that would make prednisolone use contraindicated.
6. Presence of sustained uncontrolled hypertension. At randomisation, sites will be asked to provide one blood pressure reading (systolic <160 mmHg and diastolic blood pressure reading <100 mmHg) recorded within the 8 weeks prior to randomisation.
7. Received an investigational intervention not related to the STAMPEDE2 trial (including investigational vaccines) or used an invasive investigational medical device within 30 days of randomisation.
8. >6 months from start of current ADT to randomisation.
9. Participants who have had the following ≤28 days prior to randomisation:
  - 9.1. A transfusion (platelets or red blood cells);

- 9.2. Hematopoietic growth factors;
- 9.3. Surgery requiring general anaesthetic
- 10. Known active hepatitis B virus (e.g., hepatitis B surface antigen reactive) or active hepatitis C virus (HCV; e.g., HCV ribonucleic acid [RNA] [qualitative] is detected).
- 11. Known HIV infection and any one of the following:
  - 11.1. AIDS-defining opportunistic infection within 6 months of randomisation
  - 11.2. HAART or ART regimen non-compatible with the drugs of the study due to drug-drug interaction with Niraparib (e.g., Protease inhibitors, cobicistat, efavirenz, nevirapine, etravirine, doravirine and rilpivirine)
  - 11.3. CD4 count below 300/mm<sup>3</sup> within the 8 weeks prior to randomisation.
  - 11.4. Detectable viral load within the 8 weeks prior to randomisation.

**Date of first enrolment**

11/06/2024

**Date of final enrolment**

31/12/2028

## **Locations**

**Countries of recruitment**

United Kingdom

England

**Study participating centre**

**University College London Hospitals NHS Foundation Trust**

250 Euston Road

London

England

NW1 2PG

**Study participating centre**

**The Royal Marsden Hospital (london)**

Fulham Road

London

England

SW3 6JJ

**Study participating centre**

**The Royal Marsden Hospital (surrey)**

Downs Road

Sutton

England

SM2 5PT

**Study participating centre**  
**Royal Devon and Exeter Hospital**  
Royal Devon & Exeter Hospital  
Barrack Road  
Exeter  
England  
EX2 5DW

**Study participating centre**  
**The James Cook University Hospital**  
Marton Road  
Middlesbrough  
England  
TS4 3BW

**Study participating centre**  
**North Tees Health NHS Trust**  
North Tees General Hospital  
Hardwick  
Stockton-on-tees  
England  
TS19 8PE

**Study participating centre**  
**Barts Health NHS Trust**  
The Royal London Hospital  
80 Newark Street  
London  
England  
E1 2ES

**Study participating centre**  
**Mount Vernon Hospital**  
Mount Vernon Road  
Barnsley  
England  
S70 4DP

**Study participating centre**

**Barking, Havering and Redbridge University Hospitals NHS Trust**

Queens Hospital

Rom Valley Way

Romford

England

RM7 0AG

**Study participating centre**

**Sherwood Forest Hospitals NHS Foundation Trust**

Kings Mill Hospital

Mansfield Road

Sutton-in-ashfield

England

NG17 4JL

**Study participating centre**

**University Hospitals Plymouth NHS Trust**

Derriford Hospital

Derriford Road

Derriford

Plymouth

England

PL6 8DH

**Study participating centre**

**Addenbrookes**

Addenbrookes Hospital

Hills Road

Cambridge

England

CB2 0QQ

**Study participating centre**

**Queen Alexandras Hospital**

Southwick Hill Road

Cosham

Portsmouth

England

PO6 3LY

**Study participating centre**  
**Royal Free London NHS Foundation Trust**  
Royal Free Hospital  
Pond Street  
London  
England  
NW3 2QG

**Study participating centre**  
**The Princess Alexandra Hospital**  
Hamstel Road  
Harlow  
England  
CM20 1QX

## **Sponsor information**

**Organisation**  
University College London

**ROR**  
<https://ror.org/02jx3x895>

## **Funder(s)**

**Funder type**  
Industry

**Funder Name**  
Advanced Accelerator Applications, a Novartis company

**Funder Name**  
Cancer Research UK

**Alternative Name(s)**  
CR\_UK, Cancer Research UK - London, Cancer Research UK (CRUK), CRUK

**Funding Body Type**  
Private sector organisation

**Funding Body Subtype**

Other non-profit organizations

**Location**

United Kingdom

**Funder Name**

UK Research and Innovation

**Alternative Name(s)**

UKRI

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

United Kingdom

**Funder Name**

Johnson and Johnson (during set-up phase)

## Results and Publications

**Individual participant data (IPD) sharing plan**

The datasets generated during and/or analysed during the current study are/will be available upon request. A formal data-sharing process has been developed at the MRC CTU. Requests for sharing data will need to provide details on the specific requirements, proposed research, qualifications of researchers and publication plan. The requests will be reviewed by the appropriate STAMPEDE2 committees. A data transfer agreement will be signed prior to the transfer of any information. All patients will be consented for future data sharing and if data requests are approved, only anonymised data will be sent using appropriately encrypted methods for data transfer.

Access to the digital image repository from researchers outside of the MRC CTU will be obtained through a formal data-sharing application detailing the specific requirements, proposed research, investigator qualifications and publication plan if they are interested in using the images.

Access to use of the stored pathological tissue by researchers outside of the MRC CTU will be obtained through a formal tissue access application detailing the specific requirements, proposed research, investigator qualifications and publication plan. Applications for access to tissue are required separately from access to the shared clinical data.

Data will be shared according to the CTU's controlled access approach, based on the following principles:

- No data should be released that would compromise an ongoing trial or study.
- There must be a strong scientific or other legitimate rationale for the data to be used for the requested purpose.
- Investigators who have invested time and effort into developing a trial or study should have a period of exclusivity in which to pursue their aims with the data before key trial data are made available to other researchers.
- The resources required to process requests should not be underestimated, particularly successful requests which lead to preparing data for release. Therefore, adequate resources must be available in order to comply in a timely manner or at all, and the scientific aims of the study must justify the use of such resources.
- Data exchange complies with Information Governance and Data Security Policies in all of the relevant countries.

Data will be available for sharing and researchers wishing to access STAMPEDE2 data should contact the Trial Management Group via the CTU Trial team using the study mailbox in the first instance. Research data will be stored for a minimum of 25 years.

## IPD sharing plan summary

Available on request

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Other publications</a>		22/07/2023	10/02/2026	Yes	No
<a href="#">Participant information sheet</a>	Participant information sheet	11/11/2025	11/11/2025	No	Yes
<a href="#">Study website</a>	Study website	11/11/2025	11/11/2025	No	Yes