

## **RSSSE: Suggested Audience Groups & Key Takeaways:**

### **1. Young People & Students (ages 7-12)**

*Spark curiosity*

**Keywords:** Curiosity, Reassurance, Collaboration

- Lasers and radiation aren't scary
- Lasers and radiation can be used to help treat cancer
- It takes all types of scientists to work together

Note for young children: It can be helpful to use relatable comparisons to make lasers feel familiar and exciting. For example: just like the beams superheroes use in films, a laser is a very strong, focused beam of light. In real life, lasers help doctors treat people, scan barcodes in shops, and power technology like games and DVDs.

### **2. Young People & Students (ages 13-18)**

*Inspire the next generation of researchers*

**Keywords:** Inspiration, Careers, Collaboration

- Lasers and radiation can be used to help treat cancer
- Science needs different types of scientists and doctors working together
- There's a path from classroom to breakthrough

### **3. General Public & Families**

*Build understanding and trust*

**Keywords:** Accessibility, Innovation, Hope

- Advanced radiotherapy is getting smaller and more affordable
- Every detail matters, from laser physics to patient comfort
- Real research improving real lives

### **4. Medical Professionals & Clinicians**

*Engage clinical partners and advisors*

**Keywords:** Treatment options, Evidence, Translation

- Laser-driven beams could enable novel dose delivery methods (ultra-high dose rates, spatial fractionation) and automated imaging and real-time dosimetry for research-grade precision
- Bridging the gap between radiobiology research and clinical
- Radiotherapy is under-accessed: only 35% of UK patients receive it vs. 53% recommended, with 500,000 waiting too long over the past decade, LhARA addresses a challenge that clinicians are already facing

### **5. University Students & Early-Career Researchers**

*Build the community and spark interest*

**Keywords:** Opportunity, Interdisciplinary, Impact

- World-class research happening now, not in decades
- Genuine need for diverse expertise: physics, biology, engineering, computing, clinical science
- Published research, international collaboration, tangible patient impact

## 6. Scientists & Researchers (other fields)

*Foster collaboration and knowledge exchange*

**Keywords:** Innovation, Methodology, Cross-pollination

- Novel approaches to particle acceleration and beam delivery
- Cutting-edge automated imaging and real-time biological response tracking
- Techniques applicable beyond radiotherapy (materials science, nuclear physics, biology)

## 7. Policymakers, Funders & Media

*Secure support and amplify impact*

**Keywords:** Equity, Leadership, Investment

- Radiotherapy contributes to 40% of cancer cure & gets 7% of the NHS cancer budget  
Statistics & citations can be found in the **economic case brief**, key ones for this audience group include:
  - **patients are waiting too long:** 500,000 cancer patients have waited too long for treatment over the past decade
  - **we are falling behind:** only 35% of cancer patients receive radiotherapy compared to 53% recommended in the UK
  - **cancer cases are rising:** there will be 2,000 more cancer cases per week by 2040
  - **access is too slow:** only 41% of patients receive radiotherapy within 62 days
  - Scaling up global access could save 26.9 million life-years
  - 70% of cancer patients worldwide can't access adequate radiotherapy-LhARA is driven by real need: making advanced treatment available to more people with a UK-led approach
- Techniques applicable beyond radiotherapy (materials science, nuclear physics, biology)  
More information can be found in the **wider applications brief**

## 8. Industry Partners & Commercial Collaborators

*Attract partnerships for development and translation*

**Keywords:** Commercialisation, Scalability, Partnership

- Compact laser-driven systems offer new market opportunities
- Novel accelerator, imaging, and dosimetry technologies requiring industrial expertise
- Clear pathway from proof-of-concept to clinical deployment

## 9. Patient Advocates & Cancer Community Representatives

*Build trust and ensure patient-centred research*

**Keywords:** Voice, Access, Hope

- 70% of cancer patients worldwide can't access adequate radiotherapy- LhARA is driven by real need: making advanced treatment available to more people
- Patient experience matters: from treatment chair design to facility accessibility
- Working towards treating more patients, quicker and with less side and late effects to improve quality of life after treatment