



Thank you to all the patients who agreed to take part in the REQUIRE study. Thank you for giving us a blood sample and filling out so many forms. Funding for REQUIRE from the European Union ends in September 2018 but work using the data is just beginning. Other cancer researchers are impressed with what we have done. *Together* we created a resource to increase knowledge about radiotherapy side-effects. This resource will help us find ways of working out before treatment which patients have higher risks of long-term side-effects.

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Where were patients recruited?

Patients were recruited in 26 hospitals in eight countries. The main centres were in Gent/B, Leuven/B, Montpellier/F, Heidelberg & Mannheim/GER, Milan/I, Maastricht/NL, Barcelona/SP, Santiago de Compostela/SP, Leicester/UK, Manchester/UK and New York/USA.



How many patients were recruited?

REQUIRE recruited 4,438 patients with breast (2,069), prostate (1,808) or lung (561) cancer (see

| Country | Belgium | | France | GER | Italy | NL | Spain | | UK | USA | Total | |
|-----------------|---------|--------|-------------|---------------------------------|-------|------------|-----------|----------|-----------|------------|-------|--------------|
| Main site | Gent | Leuven | Montpellier | Heidelberg/ Mannheim area | Milan | Maastricht | Barcelona | Santiago | Leicester | Manchester | | New York |
| Breast | 298 | 253 | 458 | 216 | 102 | -- | 215 | 101 | 350 | -- | 76 | 2,069 |
| Prostate | 199 | 127 | 264 | 82 | 206 | 74 | -- | 294 | 250 | 263 | 49 | 1,808 |
| Lung | 53 | 90 | 53 | -- | 55 | 61 | 36 | 88 | 42 | 51 | 32 | 561 |
| | | | | | | | | | | | | 4,438 |

table).



What did REQUITE collect?

REQUITE collected (and continues to collect) a lot of information including radiotherapy side-effect data (see table). So far we have >30,000 completed data forms. REQUITE collected blood samples and genotyped all 4,438 patients. 1,300 people also had their blood tested using an assay developed in France using a specific type of blood cell to measure who may have an increased risk of radiotherapy side-effects. We also collected blood in ‘PAXgene’ tubes from about 3,000 people. These PAXgene samples mean it is possible in the future to look at RNA (acts as a messenger from DNA to tell cells what proteins to make).

| Completed data forms on side effects in the REQUITE database by time points (as of July 2018) | | | | | | | | | | | | |
|---|----------|------|------------------|------|----------|-----|-----------|------|-----------|------|-----------|-----|
| Time Point | Baseline | | RT end/ 3 months | | 6 months | | 12 months | | 24 months | | 36 months | |
| | PRO | MD | PRO | MD | PRO | MD | PRO | MD | PRO | MD | PRO | MD |
| Breast: 2,069 | 2000 | 2057 | 1865 | 2057 | -- | -- | 1731 | 1867 | 1311 | 1434 | 247 | 253 |
| Prostate: 1,808 | 1711 | 1760 | 1647 | 1760 | -- | -- | 1502 | 1612 | 1148 | 1158 | 229 | 161 |
| Lung: 561 | 487 | 530 | 394 | 491 | 341 | 417 | 253 | 321 | 63 | 64 | n/a | n/a |

RT=radiotherapy, PRO=patient reported outcome; MD=medical doctor evaluation based on standardized classification of side effects

What has REQUITE found?

Our first results are about what we have achieved. We showed that we can collect the same data from multiple hospitals across several countries. The unique thing about REQUITE is the amount of data collected and that (with ethics permission and a password) it is accessible to other researchers working worldwide. People have not yet proven the validity of models to predict risk of side-effects before because there was not enough data for testing. A problem was that a model developed using data from one hospital could not be tested in another hospital because they did not collect the same data, REQUITE solves this problem for the future.

We made models for breast, prostate and lung cancer that appear to predict whether someone will have long-term side-effects after radiotherapy. These models have information such as a person’s age and whether they smoke, and how much radiation dose was delivered to healthy tissue. The models look good and are ready for testing (validation) using REQUITE data – we are just in the final stages of data collection. We have collected the genetic information and will see if it improves the models.

Why is REQUITE important for future patients having cancer radiotherapy?

REQUITE is important because it is an easily accessible centralised resource. We have a lot of detailed information on side-effects and quality-of-life. The resource can be used to see how many patients suffer with long-term side-effects and how their quality-of-life is affected in different countries. If our models validate, then we hope to set up trials using the models to personalise radiotherapy to reduce patients’ risk of side-effects and improve quality of life.

For further information please visit www.requite.eu or email us: requite@manchester.ac.uk.