The delivery of very high dose-rate radiotherapy (>=40Gy/s), so called FLASH treatments is an exciting new development which ahs the potential to preferentially spare normal tissue damage. Much needs to be done however before such treatments can be brought into the clinic on a routine basis. Although fundamental to this is a deeper understanding of the underlying biology of the FLASH effect, much also needs to be done on the physics side. Of paramount importance here is what is meant by 'dose-rate' and how this may relate to the FLASH effect, and whether there is a dose threshold for the effect. Based on this, delivery modalities need to be developed that can deliver high dose-rate treatments to deep seated tumours, with most work in this direction currently involving electron and proton beams. As such, models for predicting spatially varying dose-rates need to be developed, as well as extensions of these to predictions of the magnitude of the FLASH effect. Finally, the dosimetry of high dose rate treatments is also challenging, with dose rate responses of conventional dosimeters needing to be quantified and understood, and alternative, dose-rate independent techniques developed. In summary, along with the fascinating biology that still needs to be performed to fully understand the FLASH effect, there is much physics to still be done to bring this exciting treatment modality into the clinic.