I-125 permanent seed brachytherapy for prostate cancer produce good clinical outcomes and limits radiation exposure to medical staff and patients’ families. However, I-125 seeds cost thousands of dollars per implant. An encapsulated Ir-192 permanent seed possibly could costs less than $10. Could inexpensive permanent Ir-192 seeds be used for prostate implants? We review the radiobiology of permanent implants, calculate the Ir-192 permanent seed activity required, simulate I-125 and Ir-192 seed implants and mixtures thereof, calculate exposures rates near simulated Ir-192 prostate patients, calculate potential radiation exposure to medical staff and family members, review patient release regulations, and analyze the potential cost benefits. Low activity (<0.1-mCi/seed) permanent Ir-192 seed implants yield more uniform prostate doses than I-125 seed implants and acceptable urethra, bladder and rectal doses. The Ir-192 73.83-day half-life allows mixing Ir-192 seeds and I-125 seeds. We believe medical staff could safety implant 10-mCi Ir-192 per case. Occupancy factors (1/8, 1/16) could acceptably limit families’ exposures. Seed costs could be reduced markedly. With adequate protection of medical staff and proper instructions to patients post-implant, low activity (<0.1-mCi/seed) Ir-192 permanent seed implants are feasible in large patients, and in mixed (I-125, Ir-92) seed implants for modest size patients. Such implants could be useful in populous countries (China, India, Brazil) and for others (US VA Hospitals) who find I-125 seed implants too expensive to perform.