Supplementary material

Supplementary Table 1: IMPACCT intervention costs

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|  | **Cost item** | **Qty** | **Unit cost** | **Total** | **Source/Assumptions** |
| **Tackling Cancer Pain Toolkit** | | | | | |
| *Provision* | Printing brochure | 1 | GBP11.94 [EUR13.60] | n/a | GBP1791.32 [EUR2,039.75] for 150 copies |
|  | DVD | 1 | GBP2.40 [EUR2.73] | n/a | GBP360 [EUR409.93] for 150 copies |
| *Response* | Nurse telephone call | 1 | GBP91.00 [EUR103.62] | GBP9.10 [EUR10.36] | Assumes 6 minutes Clinical nurse specialist (with qual) per week; GBP91 [EUR103.62] p.h. patient contact |
|  | One-off patient cost |  |  | GBP14.34 [EUR16.33] | Sum of provision cost (GBP11.94+GBP2.40) |
|  | Per week patient cost |  |  | GBP9.10 [EUR10.36] | Nurse response cost(GBP9.10) |
| **PainCheck** | | | | | |
| *Provision* | Maintenance programming | 1 | GBP720.00 [EUR819.85] | GBP4,680.00 [EUR5,329.05] | One year of 1hr per week assuming GBP720 [EUR819.85]per day divided by n=1,400 |
|  | A4 instruction leaflet printing | 1 | GBP0.17 [EUR0.19] | GBP0.17 [EUR0.19] | Per A4 double-sided colour print |
|  | Nurse time explaining to patient | 0.5 | GBP91.00 [EUR103.62] | GBP45.50 [EUR51.81] | Assumes 30 minutes Clinical nurse specialist (with qual); GBP91 [EUR103.62]p.h. face to face contact; PSSRU 2015 page 175 |
|  | Nurse monitoring time | 1 | GBP91.00 [EUR103.62] | GBP15.17 [EUR17.27] | Assumes 10 minutes Clinical nurse specialist (with qual) per week; GBP91 [EUR103.62] p.h. face to face contact; PSSRU 2015 page 175 |
| *Response* | Nurse telephone call | 1 | GBP91.00 [EUR103.62] | GBP9.10 [EUR10.36] | Assumes 6 minutes Clinical nurse specialist (with qual) per week; GBP91 [EUR103.62] p.h. patient contact; PSSRU 2015 page 176 |
|  | One-off patient cost |  |  | GBP49.01 [EUR55.81] | Cost of intervention provision including programming and printing (GBP4,680.00/1,400)+(GBP0.17+GBP45.50) Assumes patient sample of 1,400 representative of Leeds |
|  | Per week patient cost |  |  | GBP24.27 [EUR27.64] | On-going response cost (GBP15.17+ GBP9.10) |

*Supplementary Table 2: Alternative intervention costs*

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| **Study** | **IMPACCT Intervention** | **Effectiveness** | **Cost item** | **Assumption** | **Unit cost** | **Cost** |
| Kroenke et al (2010) | PainCheck | -0.71 | Nurse care manager weekly meeting for 3 months | Meeting lasts 6 minutes - Clinical Nurse Specialist | GBP91 p.h. | GBP109.20 |
|  |  |  | Pain specialist weekly meeting for 3 months | Meeting lasts 6 minutes - Oncologist (NHS Reference HRG WF01A) | GBP332 p.h. | GBP386.4 |
|  |  |  | Nurse time to review reports | 10 minutes per week | GBP91 p.h. | GBP182 |
|  |  |  | Four nurse-led telephone calls | 6 minutes of nurse time | GBP91 p.h. | GBP36.4 |
|  |  |  | Contact patient (assumed 1 contact each) | 6 minutes of nurse time | GBP91 p.h. | GBP9.1 |
|  |  |  |  |  | **Total** | **GBP723.10 [EUR823.38]** |
|  |  |  |  |  |  |  |
| de Wit and van Dam (2001) | TCPT | -0.6 | Initial Nurse consultation | Assumes 30 minutes | GBP91 p.h. | GBP45.5 |
|  |  |  | Recording - tape provided | Assumed GBP2 | | GBP2 |
|  |  |  | Pain Brochure and Diary cost | Assumed GBP5 | | GBP5 |
|  |  |  | Two nurse-led telephone calls | 6 minutes of nurse time | GBP91 p.h. | GBP18.2 |
|  |  |  | Nurse review of diaries | 10 minutes per week (x8) | GBP91 p.h. | GBP121.33 |
|  |  |  | Additional patient contact (vs. usual care) taken from Table 5 | 0.35 additional visits per week (30 min visit) | GBP91 p.h. | GBP127.4 |
|  |  |  |  |  | **Total** | **GBP319.43 [EUR363.73]** |

Supplementary Table 3: Review papers

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| Adam, R., Bond, C. & Murchie, P. 2015. Educational Interventions For Cancer Pain. A Systematic Review Of Systematic Reviews With Nested Narrative Review Of Randomized Controlled Trials. Patient Education & Counseling, 98, 269-82. |
| Adam R, Burton CD, Bond CM, de Bruin M, Murchie P. Can patient-reported measurements of pain be used to improve cancer pain management? A systematic review and meta-analysis. BMJ Support Palliat Care. 2017 Dec;7(4):0. doi: 10.1136/bmjspcare-2016-001137. |
| Allard P, Maunsell E, Labbe J, Dorval M. Educational interventions to improve cancer pain control: a systematic review. J Palliat Med 2001;4:191–3. |
| Bennett MI, Bagnall AM, Jose Closs S. How effective are patient-based educational interventions in the management of cancer pain? Systematic review and meta-analysis. Pain. 2009;143(3):192-9 |
| Bennett Mi, Bagnall Am, Raine G, Closs Sj, Blenkinsopp A, Dickman A, Ellershaw J. Educational Interventions By Pharmacists To Patients With Chronic Pain: Systematic Review And Meta-Analysis. Clin J Pain. 2011 Sep;27(7):623-30. |
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| Marie, N., Luckett, T., Davidson, P. M., Lovell, M. & Lal, S. 2013. Optimal Patient Education For Cancer Pain: A Systematic Review And Theory-Based Meta-Analysis. Supportive Care In Cancer, 21, 3529-37. |
| Martinez, K. A., Aslakson, R. A., Wilson, R. F., Apostol, C. C., Fawole, O. A., Lau, B. D., Vollenweider, D., Bass, E. B. & Dy, S. M. 2014. A Systematic Review Of Health Care Interventions For Pain In Patients With Advanced Cancer. American Journal Of Hospice & Palliative Medicine, 31, 79-86. |
| Oldenmenger WH, Sillevis Smitt PA, van Dooren S, Stoter G, van der Rijt CC. A systematic review on barriers hindering adequate cancer pain management and interventions to reduce them: a critical appraisal. Eur J Cancer 2009;45:1370–80. |
| Santos Salas, A., Fuentes Contreras, J., Armijo-Olivo, S., Saltaji, H., Watanabe, S., Chambers, T., Walter, L. & Cummings, G. G. 2016. Non-Pharmacological Cancer Pain Interventions In Populations With Social Disparities: A Systematic Review And Meta-Analysis. Supportive Care In Cancer, 24, 985-1000. |
| Sellick, S. M. & Zaza, C. 1998. Critical Review Of 5 Nonpharmacologic Strategies For Managing Cancer Pain. Cancer Prevention & Control, 2, 7-14. |
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