

Appendix 4. Select characteristics of included articles and/or models and frameworks

Article	Characteristics of the ...			
	Model/framework			
First author/ reference/ country/ year	Name	Purpose	Methods of development	Were patient co- researchers involved in its development (yes/no/not specified – population)
Daveson/ ²⁸ / UK/ 2015	Not specified	An optimal involvement model that fulfills the needs of both users and researchers while acknowledging any potential diversity between these groups	Consultation workshop attended by patients and caregivers	Yes – patients actively involved in Cicely Saunders Institute palliative care research
Deverka/ ²⁵ / USA/ 2012	Conceptual model for stakeholder engagement in CER	A conceptual model for involving stakeholders in the CER process	Literature search, followed by practical experience with an existing stakeholder engagement process/project, and review and revision by an expert panel (including patients)	Yes - patients engaged with the Center for CANCERGEN project
Evans/ ²⁶ / UK/ 2019	SUCCESS model	Not stated	Initially developed through a workshop, then reviewed and refined through meetings and email discussions.	Yes - people diagnosed with, or caring for someone with, a chronic or long-term condition
Evans/ ²³ / UK and Wales/ 2020	PRIME Centre Wales	To enable and promote successful patient engagement across research activities within their research centre.	Informed by the research literature and the development of an engagement plan with the help of patients.	Yes – people with experience of using health services and caring for family members as well as people diagnosed with, or caring for someone

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Frank/ ²⁷ / USA/ 2015	Conceptual model for PCOR	To provide the basis for subsequent evaluative frameworks, to guide evaluation of PCOR, and to serve as a foundation for measurement models, to allow testing of hypothesized relationships between elements in the model.	Literature search and worked with a patient advisory panel	Yes - members of the PCORI Patient Engagement Advisory Panel
Gessell/ ²⁹ / USA/ 2017	Not specified	To maximize stakeholder engagement within the context of a pragmatic trial	"Expanded" engagement standards that were previously proposed to PCORI standards	Not specified
Gibson/ ³⁰ / UK/ 2017	Not specified	To map and evaluate patient engagement interactions in health services research	Adapted the researchers' previously developed model through workshops held with various patient groups	Yes - the language used within the adapted model passed through iterative changes involving both the researchers and workshop participants
Goeman/ ³³ / Australia/ 2019	Model for successful inclusion of consumers and community	The successful inclusion of consumers in research	Co-design process involving expert working and reference groups	Yes - People living with dementia and their care-partners ("consumers")

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	representatives in research			
Holmes/ ²² / Canada/ 2018	BC SUPPORT Unit Framework	To conceptualize and organize patient engagement activities	Not specified	Not specified
Pearson/ ³¹ / UK/ 2013	A provisional model for patient engagement in healthcare OR	A model for patient engagement in healthcare OR	Not specified	Not specified
Ray/ ³⁴ / USA/ 2017	Conceptual model for understanding impact of stakeholder engagement and differentiating stakeholder-engaged research from research on stakeholder engagement	A framework for planning, evaluating, and reporting both stakeholder-engaged research and research on stakeholder engagement	Initial framework developed based on synthesis of existing literature; refined through use in a patient engagement research project which examined families' experiences of access to pediatric subspecialty care	No
Ruco/ ³⁵ / Canada/ 2016	Sunnybrook Health Sciences Centre patient engagement in PBRI framework	To guide and capture the range and scope of patient engagement in PBRI at Sunnybrook Health Sciences Centre, Toronto	Developed based on CIHR's Supporting POR Visual Value Model for Patient Engagement and in alignment with Sunnybrook's PBRI Strategic plan	Not specified
Shippee/ ³² /	Framework for PSUE	To develop a standardized, evidence-based	Systematic review/environmental scan/manual	Yes - patient advisory group consisting of

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USA/ 2013		framework for understanding, reporting, and assessing PSUE in biomedical and health services research	literature search that was synthesized into a two-part framework and supplemented with input from a patient advisory group	community member PSUEs
Jose/ Unpublished/ 2020	CONNECT framework	To engage members of the autistic community in research	Developed as part of work on the CONNECT project, including 2 feedback questionnaires designed for the study	Yes – members of the autistic community

CANCERGEN = comparative effectiveness research in cancer genomics; CER = comparative effectiveness research; CIHR = Canadian Institutes of Research; OR = operations research; PBRI = practice-based research and innovation; PCORI = patient-centered outcomes research institute; POR = patient-oriented research; PSUE = patient and service user engagement; SUCCESS = service users with chronic conditions encouraging sensible solutions.