

**Table 2: Propositions for theory testing and studies used to test the propositions**

Proposition & linked sub-proposition	Studies used to test the propositions	N studies
<b>1: The feedback of PROMS or performance data leads to improvements in patient care and outcomes</b>		
1a: PROMs data will lead to improved patient outcomes	Time series analysis of changes in health gain, variation in performance and patient selection during the first three years of English PROMs programme <sup>1</sup> Cluster RCT of peer benchmarked PROMS feedback to surgeons following hip surgery in Ireland <sup>2</sup>	2 <sup>1, 2</sup>
1b: The public reporting of performance data leads to improved patient outcomes	Systematic reviews of public reporting as a quality improvement strategy <sup>3, 4</sup>	2 <sup>3, 4</sup>
<b>2: Feedback influences providers behaviour according to whether it is delivered privately (confidentially) or publicly</b>		
2a: Providers respond to private/confidential feedback on performance	Systematic review of impact of medical registries on quality of patient care <sup>5</sup> Survey of clinical audit leads for four national clinical audits in UK <sup>6</sup>	2 <sup>5, 6</sup>
2b: Public reporting of performance places additional pressure on providers to respond	Interrupted time series analysis of mortality rates for cardiac surgery before and after the introduction of public reporting in Ontario, Canada <sup>7</sup> Interrupted time series analysis of mortality rates for cardiac surgery before and after the introduction of public reporting in the northwest of England <sup>8</sup> Quasi-experimental study comparing no feedback, private feedback and public disclosure of performance data in Wisconsin US <sup>9, 10</sup>	3 <sup>7-10</sup>
<b>3: Public reporting of poor performance threatens provider's market share and prompts a significant provider response</b>		
3a: Providers experience a change in their market share following public reporting of performance data 3b: Providers take steps to improve the quality of care because they are worried about potential threats to their market share	Systematic review of public reporting as a quality improvement strategy <sup>3</sup> Studies comparing changes in the market share of high and low performing hospitals in New York following the introduction of the New York State Cardiac Reporting System <sup>11-13</sup> Economic modelling of demand for hospitals in response to changes in PROMs scores, readmission rates and mortality in England between April 2010 and March 2013 <sup>14</sup>	5 <sup>3, 11-13</sup>
3c: Providers perceive that public reporting of performance data poses a threat to their market share	Quasi-experimental study comparing no feedback, private feedback and public disclosure of performance data in Wisconsin US <sup>9, 10</sup> Surveys of provider views and self-reported use of publicly reported performance data on Ontario, Canada <sup>15, 16</sup>	3 <sup>9, 10, 15, 16</sup>
<b>4: Providers perceived that report cards damage their professional or their hospitals' reputation</b>		
4a: Providers perceive that public reporting of performance affects market share by damaging a hospitals reputation	Qualitative focus group study with patients and clinicians to explore views of PROMs data in England <sup>17</sup> Qualitative case study of six English NHS trusts to explore the impact of star performance ratings <sup>18</sup> Qualitative interview study with employers and managers to explore views and responses to	4 <sup>17-20</sup>

	publicly reported performance data in the US <sup>19</sup> Case study of NHS hospital in North of England to explore the effect of choice policies on patients and relationships within local health economies <sup>20</sup>	
4b: Media reports of hospital performance damage a hospital's reputation and affect their market share	Econometric modelling study examining impact of the public release of HFCA data on hospital market share in New York City <sup>21</sup> Econometric modelling study exploring the relationship between changes in market share and media stories concerning the HFCA data <sup>22</sup> A study analysing type, amount and themes of the newspaper coverage of the HFCA data <sup>23</sup> A survey of providers' views of the HFCA data <sup>24</sup>	4 <sup>21-24</sup>
<b>5: Providers respond to the feedback of performance data through comparing themselves to their peers</b>		
5: Providers respond to performance feedback through comparing themselves to their peers	Qualitative focus group study with patients and clinicians to explore views of PROMs data in England <sup>17</sup> Qualitative interview study with stakeholders involved in a clinical led public reporting initiative in Wisconsin <sup>25</sup> Qualitative multiple case study involving interviews with stakeholders from six high performing hospitals in the US <sup>26</sup>	3 <sup>17, 25, 26</sup>
<b>6: Consumers choose hospitals on the basis of information about the quality of services</b>		
Theory 6a: Patients are willing to move hospitals in response to poor performance Theory 6b: Patients choose hospitals on the basis of reports about service quality Theory 6c: Patients respond to poor hospital performance when it is report in the media	Systematic review of how consumers use quality of care information <sup>27</sup> National survey of patient experience of and views of patient choice in England in 2010 <sup>28</sup> Survey of patients who underwent surgery in the Netherlands to explore what factors informed their choice of hospital <sup>29</sup> Survey of patients attending four medical centres in Minneapolis to explore relative importance of different factors on their choice of hospital <sup>30</sup> Discrete choice experiment to examine the relative importance of quality of care information on patient's choice of hospital in the Netherlands <sup>31</sup> Mixed methods study including survey, discrete choice experiment and interviews with patients and GPs in four case studies to explore experiences and views of patient choice <sup>32</sup>	6 <sup>27-32</sup>
<b>7: Financial incentives and sanctions influence providers' response to the public reporting of performance data</b>		
Theory 7a: Financial incentives accelerate and amplify the impact of public reporting and feedback of performance data on improvements to patient care	Matched cohort study comparing change in quality hospital indicators over time between hospitals that engaged in public reporting only (HQA programme) and those that also volunteered to participate in a pay for performance scheme (HQID programme) in the US <sup>33</sup> Semi-structured interview study of group leaders within the Massachusetts Health Quality Partners Collaborative to identify characteristics of 'high' and 'low' engagement groups <sup>34</sup> Secondary analysis of national survey data (NSSMPP) of practices receiving QI support from the	4 <sup>33-36</sup>

	Aligning Forces for Quality Programme to examine the impact of financial incentives on quality improvement <sup>35</sup> Longitudinal analysis comparing achievement rates for 23 activities included in the Quality and Outcomes Frame and 19 activities that were not included <sup>36</sup>	
Theory 7b: Providers do not make improvements to patient care in response to performance feedback when no financial incentives are attached	Qualitative interview study to explore primary care staff views on a set performance indicators developed and fed back to practices by a team of academics <sup>37</sup> Qualitative case studies of eight providers and health board responses to and use of the Clinical Resource and Audit Group (CRAG) indicators in Scotland <sup>38, 39</sup>	2 <sup>37-39</sup>
Theory 7c: Financial incentives attached to the feedback of performance data can lead to 'tunnel vision'	Qualitative case study of six English NHS trusts to explore the impact of star performance ratings <sup>18</sup> Qualitative interview study to explore GPs views of the introduction of the routine collection of standardised depression questionnaires under the Quality and Outcomes Framework <sup>40</sup> Focus group study of primary care staff views on how the the introduction of the routine collection of standardised depression questionnaires under the Quality and Outcomes Framework influenced their management of depression in primary care <sup>41</sup>	3 <sup>18, 40, 41</sup>
<b>8: The perceived credibility of performance data influences providers' responses to the feedback of performance data</b>		
Theory 8a: The perceived credibility of the performance data influences providers' responses to performance data	Qualitative interview study of hospital staff in eight hospitals in the US to explore the barriers and facilitators to implementing data feedback for quality improvement in acute myocardial infarction <sup>42</sup> Qualitative interview study with employers and hospital managers to explore their responses to employer initiated 'report cards' in the US <sup>19</sup> Qualitative study nested within an RCT to explore surgeons views' of receiving peer benchmarked PROMS feedback to surgeons following hip surgery in Ireland <sup>43</sup>	3 <sup>19, 42, 43</sup>
Theory 8b: The source of performance data influences providers' perceptions of its credibility	Survey of providers' views of the California Hospital Outcomes Project (CHOP) reports one year after their release <sup>44</sup> Survey of providers' views of the California Hospital Outcomes Project (CHOP) reports three years after their release <sup>45</sup> Survey comparing providers views of the CHOP reports and the New York State Cardia Reporting system (NYSCRS) <sup>46</sup>	3 <sup>44-46</sup>
Theory 8c: The perceived underlying driver of public reporting systems influence providers' responses	Qualitative interview study of provider views of the performance data produced by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) <sup>47</sup> Primary care providers' views and responses to feedback from the National GP Patient Survey in England <sup>48</sup> Secondary analysis of data collected as part of the Community Tracking Study (CTS) in the US to explore providers views of publicly reported data produced by JCAHO and the Centres for Medicare and Medicaid Services (CMS) <sup>49</sup>	4 <sup>26, 47-49</sup>
Theory 8d: Clinicians have greater trust in clinician led	Qualitative interview study of Danish GPs' views of the Data Capture Programme, a GP led,	4 <sup>25, 50-52</sup>

reporting systems	<p>voluntary feedback of indicators of outcomes for patient with chronic disease<sup>50</sup></p> <p>Case study of the set up a clinician led public reporting system, the Wisconsin Collaborative for Healthcare Quality (WCHQ)<sup>25</sup></p> <p>Longitudinal cohort study of the impact of the WCHQ on the initiation of quality improvement initiatives and hospital performance<sup>51, 52</sup></p>	
<b>9: The degree to which performance data are 'actionable' influences providers' responses to the feedback of performance data</b>		
Theory 9a: Patient experience data are actionable and enable providers to take steps to improve patient care	<p>Survey of hospital leaders attitudes to different publicly reported measures of health care quality<sup>53</sup></p> <p>Systematic review of use of national/large scale user experience surveys in local quality improvement work<sup>54</sup></p> <p>Randomised controlled trial of feedback of patient experience data in primary care in the Netherlands<sup>55</sup></p> <p>Longitudinal cohort study of changes in patient experience indicators on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) between 2008 and 2009<sup>56</sup></p> <p>Surveys of providers' views of the value, use and impact of patient experience surveys in the US<sup>57, 58</sup> and France<sup>59</sup></p> <p>Qualitative interview study of hospital providers' views of and use of patient experience surveys in England<sup>60</sup></p> <p>Qualitative interview study of primary care staff views of and use of patient experience surveys in England<sup>61</sup></p>	9 <sup>55-61</sup>
<p>Theory 9b: Making patient experience data more immediate and integrated into clinical discussion improves provider responses</p> <p>Theory 9c: Providing tailored support to interpret and act on patient experience data improves providers' responses</p>	<p>Pilot cluster randomised controlled trial of facilitated patient experience feedback in hospitals in England<sup>62</sup></p> <p>Qualitative case study of peer and research support on the use of patient experience data for quality improvement in the US<sup>63</sup></p>	2 <sup>62, 63</sup>

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