**Appendix A Characteristics of previous peer-reviewed systematic reviews of the impacts of public performance reporting**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Author and year of publication** | **Study designs** | **No. included studies** | **Types of outcomes and relevant providers considered** | **QA of study** | **Key findings** |
| Fung et al., 2008 | Quantitative | 45 | To synthesize the evidence for using publicly reported performance data to improve quality. Considered different providers (Health plans, Hospitals) in relation to Selection, QI activity, Clinical outcome & Unintended consequences. | GRADE | 8 health plan-level studies suggest modest association with plan selection. 11 hospital-level studies suggest stimulation of QI activity. 9 hospital-level & 7 individual provider-level studies shows inconsistent association with selection of hospitals & individual providers. 11 hospital-level studies indicate inconsistent association with improved effectiveness. |
| Faber et al., 2009 | RCTs, CBAs and ITSs | 14 | To review the weight consumers, give to quality-of-care information in the process of choice, to summarize the effect of presentation formats, and to examine the impact of quality information on consumers' choice behaviour with respect to its impact on the consumer's choice of health plans. | EPOC checklist | Easy-to-read presentation formats & explanatory messages improve knowledge about & attitude towards the use of quality information; however, the weight given to quality information depends on other features, including free provider choice and costs. In real-world settings, having seen quality information is a strong determinant for choosing higher quality-rated health plans. |
| Ketelaar et al., 2011 | RCTs (inc. cluster CTs), QRTs, CBAs and ITSs | 4 | To determine the effectiveness of the public release of performance data in changing the behaviour of healthcare consumers, professionals & organisations. Data extracted about target groups, performance data, main outcomes (choice of healthcare provider & improvement through changes in care) as well as other outcomes. | GRADE | The small body of evidence available provides no consistent evidence that the public release of performance data changes consumer behaviour or improves care. Evidence that the public release of performance data may have an impact on the behaviour of healthcare professionals or organisations is lacking. |
| Totten et al., 2012 | RCTs (inc. cluster CTs), QRTs, CBAs and ITSs | 97 quantitative | To evaluate the effectiveness of public reporting of health care quality information as a quality improvement strategy. To determine if public reporting results in improvements in health care delivery and patient outcomes. To consider whether public reporting affects the behaviour of patients or of health care providers. To assess whether the characteristics of the public reports and the context affect the impact of public reports. | AHRQ Methods List | The heterogeneity of the outcomes and the moderate strength of evidence for most  outcomes make it difficult to draw definitive conclusions. Public reporting is more likely to be associated with changes in health care provider behaviours than with selection of health services providers by patients or families. Quality measures that are publicly reported improve over time. Although the potential for harms is frequently cited by commentators and critics of public reporting, the amount of research on harms is limited and most studies do not confirm the potential harm. Characteristics of public reports and the context, which are likely to be important when considering the diffusion of quality improvement activities, were rarely studied or even described. |
| Berger et al., 2013 | Studies involving follow-up | 25 inc. 16 hospitals | To synthesize evidence assessing the impact that public reporting has on patient outcomes and disparities. | GRADE | Mixed evidence of effect on patient outcomes - 6 studies reporting a favourable effect, 9 a mixed effect, 9 a null effect, & 1 a negative effect. One study found a mixed effect of PPR on disparities. Evidence of the impact of PPR on patient outcomes is lacking. Little evidence supporting claims that PPR will have an impact on disparities or in the outpatient setting. |
| Campanella et al., 2016 | Observational (mainly cohort) & 1 experimental | 27 (10 by MA) | To conduct a systematic review to assess, both qualitatively & quantitatively, the impact of Public Reporting on clinical outcomes. | GRADE-derived | The effect of PPR on clinical outcomes was mainly positive. MA indicated lower overall mortality - RR of 0.85 (95 % CI, 0.79-0.92), albeit with high heterogeneity. Existing research covering different clinical outcomes supports the idea that PR could, in fact, stimulate providers to improve healthcare quality. |

QA Quality assessment; QI Quality Improvement; RCTs Randomized Controlled trials; CBAs Controlled Before-after Trials; ITSs Interrupted Time Series; QRTs Quasi Randomized Trials; EPOC Effective Practice and Organisation of Care: MA Meta-analysis; AHRQ Agency for Healthcare Research and Quality.

**Appendix B Classification of public performance reporting impacts**

|  |  |  |
| --- | --- | --- |
| **Quality improvement (performance)** | **Organisation or practitioner subject to PPR** | **Performance measures subject to PPR** |
|  | Hospitals  Medical specialists  Health Plans (e.g. HMOs)  Family physicians (general practitioners) | Mortality  Clinical, biochemical or radiological indicators  Process indicators  Patient experience |
| **Selection (switching of services)** | **Consumer, organisation, or practitioner responding to PPR** | **Choice of services** |
|  | Consumers  Hospitals  Medical specialists  Health Plans (e.g. HMOs)  Family physicians (general practitioners) | Hospitals  Medical specialists  Health Plans (e.g. HMOs)  Family physicians (general practitioners) |

PPR public performance reporting; HMO health maintenance organisation

**Appendix C Medline search strategy**

1. (public adj2 (report\* or disclosure\* or audit\* or information)).mp.

2. (performance adj2 (report\* or outcome\* or indicator\* or measure\* or data or information or rating)).mp.

3. (report adj (card or cards)).mp.

4. (consumer adj2 (report\* or information)).mp.

5. (quality adj2 (indicator\* or information or criteria or criterion or standard\* or norm)).mp.

6. benchmarking.mp.

7. provider profiling.mp.

8. (public release and (data or information or performance)).mp.

9. (accreditation adj2 report\*).mp.

10. or/1-9

11. (random\* adj2 (trial\* or study)).mp. or randomized controlled trial.pt.

12. clinical trial.mp. or clinical trial.pt. or multicenter studies.pt. or evaluation studies.pt.

13. ((time adj series) or longitudinal study or longitudinal studies).mp.

14. quasi.mp.

15. ("before and after" or pre test or pretest or posttest or post test).mp.

16. (cohort study or cohort studies).mp.

17. case control.mp.

18. (cross sectional or cross-sectional).mp.

19. or/11-18

20. 10 and 19

21. consumer satisfaction.mp.

22. patient preference\*.mp.

23. decision making.mp.

24. (choice adj2 (behavior or behaviour)).mp.

25. patient acceptance of health care.mp.

26. patient participation.mp.

27. patient satisfaction.mp.

28. patient attitude.mp.

29. (utilisation or utilization).mp.

30. (purchasing or funding or buying).mp.

31. governance.mp.

32. physicians practice.mp.

33. (clinical practice or medical practice or healthcare quality).mp.

34. (quality adj2 improv\*).mp.

35. ((outcome\* adj2 improve\*) or (patient\* adj2 outcome\*)).mp.

36. ((organisation\* or organization\*) adj2 (change\* or process\* or development or structur\*)).mp.

37. clinical outcome\*.mp.

38. (adverse effect\* or ((unintended or dysfunctional or negative) adj2 (effect\* or consequence\* or outcome\*))).mp.

39. (health care quality or health care planning).mp.

40. or/21-39

41. exp primary health care/

42. exp hospitals/

43. physicians/

44. health professionals.ab,ti.

45. health personnel/

46. health plans.ab,ti.

47. health plan.ab,ti.

48. insurance.ab,ti.

49. (physician\* or gp or gps or doctor or doctors or general practi\* or prescriber\* or group pract\* or institutional pract\* or partnership pract\* or family pract\* or office pract\* or private pract\* or primary pract\* or nurse or nurses).tw.

50. (pharmacist\* or pharmacies or pharmacy).tw.

51. hospital\*.tw.

52. physiotherapist.mp.

53. midwife.mp.

54. (health care centre\* or health care center\* or health care system\* or healthcare centre\* or healthcare center\* or healthcare system\* or health center\* or health centre\* or health system\* or (health adj2 organisation\*) or (health adj2 organization\*)).mp.

55. (medical centre\* or medical center\* or medical system\*).mp.

56. dietician.mp.

57. (health care provider\* or healthcare provider\* or medical provider\*).mp.

58. psychologist.mp.

59. psychiatrist\*.mp.

60. exp group practice/

61. exp institutional practice/

62. (dentists or dental clinics).mp.

63. exp private practice/

64. exp family practice/

65. exp physicians/

66. exp physicians, family/

67. exp professional practice/

68. exp nurses/

69. exp nurse clinicians/

70. physician's practice patterns/

71. or/41-70

72. 20 and 40 and 71

73. limit 72 to english

**Appendix D Full text screening guide**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. **Empirical** |  |  |  |
| Is the paper an empirical study reporting primary data? | No | Yes | Doubt |
| Go to 5 | Go to 2 | Go to 2 |
| 1. **Quantitative data** |  |  |  |
| Does the paper report quantitative data? | No | Yes | Doubt |
| Go to 5 | Go to 3 | Go to3 |
| 1. **Study Design** |  |  |  |
| Is the study design a randomised controlled trial, quasi randomised trial, interrupted time series study, before and after study? Or a cohort, case-control, and cross-sectional study? | No | Yes | Doubt |
| Go to 5 | Go to 4a | Go to 4a |
| 1. **Association between public performance reporting and behavioural change** |  |  |  |
| a. Does the paper report exposure to public performance reporting? Including:   * Process measures * Healthcare outcomes * Structure measures * Consumer experiences * Expert and/or peer assessed measures | No | Yes | Doubt |
| Go to 5 | Go to 4b | Go to 4b |
| b. Does the paper report one or more of the following outcome measures?  Selection   * Changes in the healthcare decisions of purchasers * Changes in the healthcare decisions of providers * Changes in the healthcare decisions of consumers   Quality improvement   * Stimulated quality improvement activities   Clinical outcomes   * Resulted in improved clinical outcomes   Organisational change   * Resulted in changes to organisational structures and processes   Unintended consequences.   * Improving performance by treating patients who are less sick * Shifting resources to areas reported on * Gaming or manipulation of the data | No | Yes | Doubt |
| Go to 5 | Go to 4c | Go to 4c |
| c. Does the paper report an association between exposure to public performance reporting and behavioural change? Including either unadjusted association (e.g., correlations, unadjusted Odds Ratio, means and SDs, etc.) or adjusted associations (e.g., adjusted for one or more covariates, as well as models where public performance reporting is a mediator or a covariate) | No | Yes | Doubt |
| Go to 5 | Go to 5 | Go to 5 |
| 1. **Decision** |  | | |
| If all 1–4 ‘Yes’ | Include | | |
| If any 1–4 ‘No’ | Exclude | | |
| If any 1–4 ‘Doubt’ | Undecided – a third author to provide judgement | | |

**Appendix E Newcastle-Ottawa quality assessment scale**

**Case control studies**

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Exposure categories. A maximum of two stars can be given for Comparability.

**Selection**

1) Is the case definition adequate?

a) yes, with independent validation \*

b) yes, eg record linkage or based on self reports

c) no description

2) Representativeness of the cases

a) consecutive or obviously representative series of cases \*

b) potential for selection biases or not stated

3) Selection of Controls

a) community controls \*

b) hospital controls

c) no description

4) Definition of Controls

a) no history of disease (endpoint) \*

b) no description of source

**Comparability**

1) Comparability of cases and controls on the basis of the design or analysis

a) study controls for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Select the most important factor.) \*

b) study controls for any additional factor \* (This criteria could be modified to indicate specific control for a second important factor.)

**Exposure**

1) Ascertainment of exposure

a) secure record (eg surgical records) \*

b) structured interview where blind to case/control status \*

c) interview not blinded to case/control status

d) written self report or medical record only

e) no description

2) Same method of ascertainment for cases and controls

a) yes \*

b) no

3) Non-Response rate

a) same rate for both groups \*

b) non respondents described

c) rate different and no designation

**Cohort studies**

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Outcome categories. A maximum of two stars can be given for Comparability

**Selection**

1) Representativeness of the exposed cohort

a) truly representative of the average \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (describe) in the community \*

b) somewhat representative of the average \_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the community \*

c) selected group of users eg nurses, volunteers

d) no description of the derivation of the cohort

2) Selection of the non exposed cohort

a) drawn from the same community as the exposed cohort \*

b) drawn from a different source

c) no description of the derivation of the non exposed cohort

3) Ascertainment of exposure

a) secure record (eg surgical records) \*

b) structured interview \*

c) written self report

d) no description

4) Demonstration that outcome of interest was not present at start of study

a) yes \*

b) no

**Comparability**

1) Comparability of cohorts on the basis of the design or analysis

a) study controls for \_\_\_\_\_\_\_\_\_\_\_\_\_ (select the most important factor) \*

b) study controls for any additional factor \* (This criteria could be modified to indicate specific control for a second important factor.)

**Outcome**

1) Assessment of outcome

a) independent blind assessment \*

b) record linkage \*

c) self report

d) no description

2) Was follow-up long enough for outcomes to occur

a) yes (select an adequate follow up period for outcome of interest) \*

b) no

3) Adequacy of follow up of cohorts

a) complete follow up - all subjects accounted for \*

b) subjects lost to follow up unlikely to introduce bias - small number lost - > \_\_\_\_ % (select an adequate %) follow up, or description provided of those lost) \*

c) follow up rate < \_\_\_\_% (select an adequate %) and no description of those lost

d) no statement