Advanced access scheduling outcomes: a systematic review
Rose KD, Ross JS, Horwitz LI

CRD summary
The authors concluded that advanced access reduced wait time and no-show rates. However, effects on patient satisfaction were inconsistent and data on clinical outcomes and potential harm were lacking. This was a generally well-conducted review, but poor quality and reporting of the individual studies mean that the findings should be interpreted with caution.

Authors' objectives
To assess the effects of implementing advanced access scheduling in the primary care setting on patient and physician and/or practice outcomes.

Searching
MEDLINE, SCOPUS and Web of Science were searched to August 2010 for full-text English-language articles. Search terms were reported. Reference lists of relevant articles and grey literature were searched manually.

Study selection
Controlled and uncontrolled studies that assessed the effects of advanced access interventions versus no intervention in a primary care setting were eligible for inclusion if they reported quantitative data on patients and/or provider outcomes.

Most of the included studies were conducted in USA; two were in UK. Settings were practices that specialised in family or general medicine or paediatrics, from small private offices to large health systems. Some patients had diabetes and some suffered from depression. Some studies included other quality-improvement activities in addition to advanced access implementation.

The main outcomes of interest were success of advanced access implementation (time to third-next available appointment), physician and/or practice outcomes (no-show rate, fiscal outcomes and provider satisfaction) and patient outcomes such as patient satisfaction (overall satisfaction and appointment system satisfaction), continuity of care, loss to follow-up, emergency department and/or urgent care use and chronic disease quality measures.

Two reviewers independently screened studies for inclusion. Disagreements were resolved by consensus.

Assessment of study quality
Two reviewers assessed the risk of bias in the included studies using a modified version of Cochrane Effective Practice and Organisation of Care Groups risk of bias criteria. Controlled trials were assessed on randomisation, allocation concealment, comparable baseline and outcomes, blinding, protection against contamination, selective outcome reporting and other risks of bias. Uncontrolled trials were assessed on intervention details, blinding, selective outcome reporting and other risks of bias.

Data extraction
Two reviewers independently extracted outcome data.

Methods of synthesis
Studies were combined as a narrative synthesis and presented in tables. Linear regression analysis was conducted to assess the effect of success of advanced access implementation (time to third-next available appointment) on no-show rate.

Results of the review
Twenty-one studies (reported as 28 articles that described 24 studies) were included in the review: one randomised controlled trial (RCT), three controlled before-and-after studies, three cross-sectional studies and 14 uncontrolled
before-after studies. The studies involved 1,536 practices (range one to 862). Overall, studies were at high risk of bias. Follow-up ranged from three months to approximately four years.

**Wait time for an appointment:** (eight studies)

Time to third-next available appointment was reduced with advanced access implementation; five studies that performed statistical analyses reported statistically significant reductions, with a mean time to third-next available appointment of less than five days.

**Physician and practice outcomes:** (14 studies)

Advanced access implementation significantly reduced no-show rate (11 studies); absolute change ranged from -24% to zero. Four (reported as five) of 11 studies reported statistically significant reductions, with greatest benefit among practices with high no-show rates at baseline. Other findings were reported in the review.

**Patient satisfaction:** (eight studies)

One of five studies reported a statistically significant improvement in overall patient satisfaction. None of the four studies that assessed patient satisfaction with the appointment system reported statistically significant improvements and one reported a worsening in patient satisfaction.

Evidence on continuity of care and clinical outcomes was limited and results were mixed.

Linear regression indicated a positive but non-significant relationship between time to third-next available appointment and no-show rate (five studies).

**Authors' conclusions**

Advanced access reduced wait time and no-show rates. However, effects on patient satisfaction were inconsistent and data on clinical outcomes and potential harm such as loss to follow-up were lacking.

**CRD commentary**

The review question and supporting inclusion criteria were clearly stated. The literature search was limited to English-language articles, so language bias may have been introduced. Potential for publication bias was acknowledged by the authors. Study quality was assessed using a modified version of previously published criteria. The studies were generally at high risk of bias, which reduced the robustness of the findings. Each stage of the review was undertaken in duplicate, which reduced potential for reviewer error and bias. Few patient details were reported and there was some variability among study settings, outcome definitions and measurement tools. Given the variability among studies and limited statistical data reported by the individual studies, a narrative synthesis was appropriate. As stated by the authors, limited reporting made it difficult to interpret the results. The authors acknowledged further limitations with the included studies (such as the study design quality) and they acknowledged that it was not possible to isolate the effect of advanced access scheduling on outcomes as a number of studies included concurrent quality-improvement initiatives.

This was a generally well-conducted review and the authors' conclusions appeared to reflect the evidence. However, poor quality and reporting of the individual studies made it difficult to determine the reliability of the findings and they should be interpreted with caution.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that a large randomised trial of open-access scheduling that included patient outcomes such as satisfaction, continuity of care, quality of care and health care utilisation, along with a rigorous assessment of loss to follow-up, was required to further assess the utility of this scheduling system.
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