Table B.4: Diagnostic Errors, Result Notification Systems—Systematic Reviews and Meta-Analyses

Note: Full references are available in the [Section 1.2 reference list](#Section1point2refs).

| **Author, Year** | **Description of Patient Safety Practice** | **Settings and Population** | **Summary of Findings** | **Implementation Themes/Findings** |
| --- | --- | --- | --- | --- |
| **Liebow et al., 20128** | Automated notification systems; call centers | Nine articles met criteria for inclusion, as follows. Population: All patients in healthcare settings with lab results that include a critical value. Intervention: Automated notification systems and call centers for communicating critical values. Comparison: Manual critical values notification systems. Outcome: Timeliness and accuracy of reporting or receipt of critical values information, or timeliness of treatment based on critical values information. | Automatic notification systems (4 studies): only one study of “good quality”; average improvement from implementing automated notification systems is d=0.42 (95% confidence interval [CI], 0.2 to 0.62). Overall strength of evidence is suggestive.  Call centers (5 studies): the average odds ratio for call centers is odds ratio [OR]=22.1 (95% CI, 17.1 to 28.6). Call centers are effective in improving the timeliness and accuracy of critical value reporting in an inpatient care setting, and are recommended as an “evidence-based best practice.” | Automated notification systems may disrupt usual lines of communication and provide too much/too frequent information. Risk of losing back-up contact information; risk for HIPAA violations.  Call centers may require additional communications with lab staff when caregivers require additional information that call centers may not have; staffing needs are significant. |
| **Slovis et al., 20179** | Automated notification systems (asynchronous) | Thirty-four articles pertaining to asynchronous automated electronic notifications of laboratory results published through 2016. | Several asynchronous automated electronic notification systems for laboratory results have been successfully implemented with improvements in workflow and time to acknowledgement of results. | Though some critical alerts are necessary, not all critical results warrant notification, because not all critically abnormal laboratory values require emergent intervention. However, some studies have demonstrated that noncritical urgent and elective notifications can also improve clinical care. |