Effective communication between inpatient and primary care physicians (PCPs) is essential for safe, high-quality transitions. Unfortunately, PCPs are often not meaningfully engaged in this process; communication is frequently challenging or nonexistent. Instead, information is suboptimally conveyed via lengthy, disorganized discharge summaries. Consequently, timely knowledge is not transferred to PCPs, who instead must seek out and identify actionable information themselves. These deficiencies can lead to misinterpretation of information and patient harm.

An important component of “ideal” transitions is timely communication of results of tests pending at discharge (TPADs). TPADs are variably documented in discharge summaries, and physician awareness about them is strikingly poor. Communication about TPADs should convey rationales for ordering tests and necessary actions to take in response to finalized results. Most often, this knowledge resides with the inpatient team.

Health information technology (HIT) is an effective strategy for improving test-result management. We implemented an automated system that notifies inpatient attendings and PCPs of TPAD results via email and demonstrated increased awareness by these physicians at the time of required action. Nevertheless, without timely knowledge transfer, attendings and PCPs may have differing opinions regarding which TPAD results are actionable. For 59 patients, both thought none of the TPAD results were actionable. For 12 patients, both identified actionable TPAD results. For 12 patients, both thought at least 1 TPAD result was actionable, and they identified the same actionable TPAD result for all 12. Overall, attendings and PCPs agreed on actionability in 72.5% (12/16) of cases. Discharge summaries were available in our electronic medical record (EMR) within 24 hours of discharge. Network physicians (affiliated with Partners HealthCare, Inc.) had access to all components of the EMR, including the discharge summary and test results. Non-network PCPs were faxed discharge summaries within 48 hours of discharge per institutional policies. For this study, we identified all patients for whom the attending and PCP completed the survey and answered questions about TPAD actionability. We then compared the identified TPADs listed by the attending and PCP in that survey.

RESULTS
We enrolled 441 patients in our original study. We sent 441 surveys to 117 attendings and 353 surveys to 273 PCPs. Eighty-eight patients did not have an identified PCP. We received 275 responses from 83 attendings (62% response rate), and 152 responses from 112 PCPs (43% response rate). Patient and physician characteristics are reported elsewhere.

For this analysis, we identified the 98 patients (aged 60 ± 18 years, 44 male, 52 Caucasian, 46 non-Caucasian, 85 network, 13 non-network) cared for by 46 attendings (aged 44 ± 11 years, 33 male, 22 hospitalists, 24 nonhospitalists) and 79 PCPs (aged 45 ± 12.5, 33 male, 66 network, 13 non-network) for whom we received completed surveys from both physicians. For 59 patients, both thought none of the TPAD results were actionable. For 12 patients, both thought at least 1 was actionable, and they identified the same actionable TPAD result for all 12. Overall, attendings and PCPs agreed on actionability in 72.5% (71/98) (Kappa 0.29, 95% confidence interval: 0.09-0.50). Table 1 shows the type of action taken by responsible providers. There were 9 patients (9%) for whom the attending alone thought at least 1 TPAD result was actionable; of these, subsequent attending-initiated communication occurred in 77.8% (7/9). There were 18 patients (18%) for whom the PCP alone thought at least 1 TPAD result was actionable; of these, subsequent PCP-initiated communication occurred in 77.8% (14/18). Table 2 shows concordance of actionable TPAD by type. In instances of
disagreement, the attending frequently reported microbiology TPADs (eg, culture data, viral serologies) as actionable, whereas the PCP reported all TPAD types (eg, culture data, colon biopsy, vitamin D, magnetic resonance imaging) as actionable.

**DISCUSSION**

We found fair agreement between attendings and PCPs regarding actionability of TPAD results. In 27 patients (27.5%), either the attending or PCP considered TPAD results actionable when the other did not. Possible explanations for this include different thresholds for taking action (eg, inpatient physicians may view vitamin D levels as acceptable within broader ranges than PCPs, and PCPs may view negative results as actionable if they need to contact the patient whereas attendings may not), varying clinical context (eg, rationale for why microbiology culture data is actionable), and varying practices for escalating care (eg, referring patients back to the hospital).

Our study was limited by small sample size and low PCP response rate. Nonetheless, the findings suggest that poor concordance between inpatient and ambulatory physicians will persist without tools that promote more effective communication. Greater awareness alone may be insufficient to mitigate consequences of missed TPAD results if physicians are not “on the same page” regarding which results require action.

To better engage PCPs, healthcare systems require HIT infrastructure that facilitates seamless care team communication across care settings. When optimally configured, HIT can facilitate greater PCP involvement in postdischarge communication. For example, our system promoted subsequent postdischarge communication in 78% of initial discordance in TPAD actionability; however, most of it was not between the attending and the PCP. Thus, improvements could be made to facilitate more effective communication among key inpatient and ambulatory providers. Furthermore, when configured to facilitate conversation among these providers regarding the discharge care plan throughout a patient’s entire hospital course, HIT can promote effective knowledge transfer by virtue of adding clinical context to test ordering and follow-up. Additional work is needed to understand whether such communication clarifies contingencies and facilitates appropriate postdischarge action. Nevertheless, current electronic solutions (eg, passive placement into results “in-baskets”) will likely be ineffective because they do not reliably improve awareness and active communication about context, rationale, interpretation, suggested action, or transfer of responsibility.

In summary, discrepancies in TPAD actionability by inpatient and ambulatory providers still exist, even when awareness of TPAD results is improved by HIT. By fostering more effective communication among key care-team members across care settings, HIT could mitigate the consequences of suboptimal care transitions. With regard to TPAD results, this may favorably impact unnecessary testing, diagnostic and therapeutic delays, and medical errors.

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**References**


