**Supplemental Digital Content 2: Provider vs. Patient Discretion in Use**

Patients generally have discretion in undergoing the types of outpatient (nonemergent, non-hospital) services we examined, although a key question is how comfortable patients would feel in refusing care that providers suggest. Although this is not directly detectable in our data set, robust insights can be developed. First, HDHP members had financial incentives to reduce utilization after the index date whereas their providers did not, so any reductions were likely driven primarily by HDHP patients. Second, it is helpful to consider visits and testing as two distinct categories because of differing patient-provider influences on utilization decisions. Reductions in outpatient visits are patient-driven almost by definition because patients must usually decide independently whether to present (although decision support resources are sometimes available such as telephone triage). Outpatient testing usually involves joint patient-provider decisions at the point of care, so that the reductions we detected might indicate that patients (1) requested that providers not order tests, (2) did not show up for ordered tests, or (3) experienced reductions only because outpatient visits declined, implying that the number of tests per visit remained the same. In this third case, HDHPs might primarily have a "gatekeeper" effect on outpatient services via reducing contact with the system.

A related question is whether HDHP members discriminate between high- and low-value outpatient visits by preserving "essential" and reducing "non-essential" visits. Our classification of outpatient visits as higher- and lower-priority should provide insights into this question. In essence, we did not find evidence that patients made such distinctions given the similar level of reductions in both high- and low-priority care (Table 2). This is consistent with the general literature on cost-sharing.

To develop insights about whether testing under HDHPs and traditional plans was equally as "provider-driven," we calculated average lab testing per outpatient visit (see table below). For general labs, we found that the number of tests per visit was unchanged, implying that HDHP patients did not seem to request or otherwise cause changes in testing. That is, general lab test reductions were seemingly caused by outpatient visit reductions, not point-of-care consumerism.

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| ***Table: Change in Diagnostic Tests Per Visit, by Study Group*** |
|  | *HDHP Group (N=7953)* |  | *Control Group (N=7953)* |  |  |  |
|  |  |  |  |  |
|  | *Test per Visit* |  | *Test per Visit* |  | *Relative Change* |
| *Service* |  |  |
| General lab tests per visit |  |  |  |  |  |  |  |  |
| Baseline | 0.90 |  | 0.89 |  | 0.3% |
| Follow-up | 1.01 |  | 1.00 |  |  |  |
| Pre-post % change | 12.5% |  | 12.2% |  |  |  |
| a Cost sharing for services outside of deductible structure consists of $20 copays (visits) or first dollar coverage (preventive lab tests); all services falling under the deductible are subject to full cost sharing (general lab and radiology tests).  |
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