Incentivizing Residents to Document Inpatient Advance Care Planning

Discussing preferences for care near the end of life increases the likelihood that patients will receive care consistent with their preferences.1-4 Recent work5 demonstrates that medical professionals infrequently ask about and document preferences for patients upon hospitalization. Because most end-of-life discussions occur in hospitals,6 we implemented a quality improvement program incentivizing resident physicians to consistently document key information about inpatient advance care planning discussions in a timely manner in an accessible location.

Methods | We conducted the project between July 1, 2011, and May 31, 2012, on the medical service at the University of California, San Francisco (UCSF), where the Medical Center and departments of medicine and graduate medical education collaborated to form the Housestaff Incentive Program. In this program, trainees choose quality improvement goals and faculty mentor trainee champions through design and implementation of projects. If goals are met, all trainees receive a financial incentive. Internal Medicine residents selected the goal of improving documentation of advance care planning discussions on the basis of pilot work and experience that inconsistent documentation was a barrier to honoring patients’ wishes on transitions of care. Input from key stakeholders, including emergency department, outpatient, hospital, and palliative care providers, informed the intervention, especially location and content of documentation. The project included 3 key elements; the details of each of these are included in the Table. To assess documentation rates, program residents reviewed charts of a random sample of recently discharged patients on a biweekly basis. The UCSF institutional review board approved the project.

Results | The Figure shows implementation of key aspects of the intervention and the percentage of discharge summaries that included the required documentation by program month. Documentation rates are based on medical record review of 1474 patients, comprising 55.5% of those discharged from the medical service during the project period. Rates rose from 22.2% at the beginning of the program to more than 90% by October and remained near this level through May. In comparison, documentation rates for patients discharged from an attending-only service, which used the electronic template but did not receive the financial incentive or feedback, were 0% to 50% with a yearly mean of 11.7%.

Discussion | We implemented a multifaceted intervention to improve resident documentation of advance care planning discussions in a consistent format and location. We believe that...
the discharge summary template and the financial incentive program provided the foundation for the observed increase in documentation rates. However, rates did not begin to increase until we implemented and refined performance feedback, indicating that this aspect was essential. Further work should be designed to demonstrate which specific interventions are most important.

Several limitations of this project warrant consideration. A key limitation was that we did not measure patient outcomes, and doing so will be critical in future work. In addition, we did not track documentation rates after the end of the project. Future programs should focus on sustainability, for example, by electronic medical record automation of audit and feedback. Finally, it is possible that factors other than the intervention contributed to the increase in rates that we observed during the course of the program.

In conclusion, our trainee-led quality improvement project, including a structured electronic medical record template, a financial incentive, and performance feedback, increased timely documentation of inpatient advance care planning discussions. Our results highlight the effectiveness of engaging residents in quality improvement activities. In addition, they present the possibility that such an incentive program could improve patient outcomes by ensuring that their wishes are available across care transitions.

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Hospital Clinicians’ Responsiveness to Assay Cost Feedback: A Prospective Blinded Controlled Intervention Study

In developed countries, the costs of providing medical care are consistently increasing and projected to continue to do so. Some components of health care may be regarded as discretionary, and this is reflected in the large variation in hospital costs that was not associated with clinical outcomes and the conclusions of a systematic review that non-evidence-based variables influence physicians’ test ordering. In the United Kingdom, health care is provided by the National Health Service (NHS), with hospital physicians requesting diagnostic tests based on their perception of good clinical practice. The service is free at source, and physicians are not routinely informed of the individual cost of their activities. We tested the hypothesis that hospital clinicians are sensitive to feedback of assay cost in a blinded prospective controlled study.

Methods | The study was based in Nottingham University Hospitals NHS Trust. The study population consisted of all inpatients and outpatients who attended either Nottingham City Hospital (NCH) (intervention site) or Queen’s Medical Centre (QMC) (control site). The intervention consisted of a message stating “Cost per test £1.00; total NUH £200 914” that was added to the CRP reports. The intervention was introduced at the NCH site but not at QMC. The total number of blood CRP assays requested were obtained for the 52 weeks before and after the intervention. We also collected data over the same period on the number of complete blood cell count requests to generate an independent measure of clinical activity in the 2 centers. The primary comparison used time series analysis of the difference in weekly frequency of the total number of blood CRP assays requested in the 52 weeks before compared with the 52 weeks after the intervention was introduced at NCH vs QMC. More details are available in the eMethods in the Supplement.

Results | At NCH there was a significant decrease in the number of assays after the intervention was implemented, with a mean decrease in demand of 382 CRP assays per week (95% CI, 319 to 444) (P < .001), representing a proportionate decrease from baseline of 32% (95% CI, 27% to 37%). No such change was observed in the weekly number of CRP assays at QMC (Table). Comparison of the difference in the weekly number of CRP assays requested at NCH vs QMC demonstrated a significant increase in the difference between the 2 sites of 338 CRP assays per week (95% CI, 279 to 396) (P < .001) after the intervention was implemented (Figure), representing a 99% (95% CI, 82% to 116%) change compared with the baseline weekly difference. These differences were a consequence of a decrease in demand in inpatients at NCH (increase in weekly difference between sites of 386 assays [95% CI, 339 to 433]).

Discussion | To our knowledge, this is the first study that has investigated the implementation of feedback of the cost of an assay to the requesting clinicians on subsequent demand at the institutional level. Our data clearly demonstrate that after the introduction of the intervention, the demand for CRP blood assays decreased.

Table. Total Number of CBC and CRP Assays Requested at NCH (Intervention Site) and QMC (Control Site) Sites Before and After Intervention Implemented to CRP Reports

<table>
<thead>
<tr>
<th>Site</th>
<th>Total CBC Assays, No.</th>
<th>Total CRP Assays, No.</th>
<th>Absolute Change in No. of Weekly CRP Assays</th>
<th>P Value</th>
<th>% Change in No. of Weekly CRP Assays From Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>52 Weeks Before</td>
<td>52 Weeks After</td>
<td>52 Weeks Before</td>
<td>52 Weeks After</td>
<td></td>
</tr>
<tr>
<td>NCH Inpatients</td>
<td>154 976</td>
<td>143 213</td>
<td>53 222</td>
<td>35 730</td>
<td>−336 (−395 to −278)</td>
</tr>
<tr>
<td>NCH Outpatients</td>
<td>60 074</td>
<td>60 523</td>
<td>85 566</td>
<td>61 97</td>
<td>−45 (−54 to −36)</td>
</tr>
<tr>
<td>NCH Total</td>
<td>215 050</td>
<td>203 736</td>
<td>61 778</td>
<td>41 927</td>
<td>−382 (−444 to −319)</td>
</tr>
<tr>
<td>QMC Inpatients</td>
<td>140 697</td>
<td>151 425</td>
<td>58 667</td>
<td>61 259</td>
<td>+50 (−27 to +127)</td>
</tr>
<tr>
<td>QMC Outpatients</td>
<td>69 357</td>
<td>74 713</td>
<td>20 826</td>
<td>15 941</td>
<td>−94 (−125 to −63)</td>
</tr>
<tr>
<td>QMC Total</td>
<td>210 054</td>
<td>226 138</td>
<td>79 493</td>
<td>77 200</td>
<td>−44 (−148 to +60)</td>
</tr>
</tbody>
</table>

Abbreviations: CBC, complete blood cell count; CRP, C-reactive protein; NCH, Nottingham City Hospital; QMC, Queen’s Medical Centre. **Time series analysis comparing before and after intervention.