The Impact of Self-Assessment with Peer Feedback on Health Provider Performance in Mali

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Executive Summary

Improving the quality of clinical care in developing country settings is difficult, both in public sector settings where supervision is infrequent and in private sector settings where supervision and certification are non-existent. Undertaken in a peri-urban area in Mali, this study tested a low-cost method—self-assessment with peer feedback—for improving the quality of care that providers offer. It was a cross-sectional, simultaneous program versus control group study of the impact of self-assessment with peer feedback on compliance with quality of care standards. The two indicators of interest were compliance with standards for fever care and structural quality. Both standards had been promulgated by Mali’s Ministry of Health (MOH). The study examined 36 providers—12 who used the intervention and 24 who did not—over a three-month period (from May 2001 through July 2001). Overall, the research team found a significant difference between the intervention and control groups in terms of both overall compliance (p<0.001) and assessment of fever (p<0.005). The total cost for the intervention for 36 providers was less than US$ 250, approximately $6 per provider. The data suggest that self-assessment with peer feedback, when used regularly, can have a significant effect on compliance with standards. However, it is clear that self-assessment is not a resource-neutral intervention. All of the interviewed individuals from the intervention pool characterized the extra work required by the intervention as burdensome. In particular, they emphasized the “long duration” of the study that “discouraged” them. Future research on self-assessment with peer feedback should include a larger sample of providers and examine the impact over time.

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Recommended citation


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The Impact of Self-Assessment with Peer Feedback on Health Provider Performance in Mali

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1. Background

The goal of improving healthcare delivery is often cited in the field of international health, frequently with an emphasis on the improvement of the quality of care. One particular area of emphasis in quality improvement (QI) programs in developing countries has been improving providers’ performance. However, the logistics and costs of formal QI programs and the frequent lack of ongoing supervision have meant that sustained improvements in provider performance have been difficult to realize. This study tested a low-cost method, self-assessment, for improving the quality of care providers offer in a peri-urban area in Mali. Of interest was whether self-assessment had a significant impact on providers’ compliance with local standards for fever care and structural quality.

The field of quality assurance in health has developed around a focus on improving providers’ compliance with evidence-based standards in order to improve health outcomes (Grimshaw and Russell 1994). However, achieving compliance with standards is often elusive, particularly in developing counties, where health information systems often collect basic system statistics, such as utilization and coverage rates. Such systems infrequently assess actual provider performance, as measured by providers’ compliance with standards, although existing research has found low levels of compliance with accepted clinical standards in developing country settings (Heiby 1998). A summary of classifications of interventions to achieve performance according to standards published by the Quality Assurance (QA) Project presents the following categories and types of interventions (Marquez 2001):

- Information transfer: educational materials, training, mass media
- Learning through social influence: opinion leaders, individual instruction, patient-mediated interventions, peer review, and support
- Information linked to performance: reminders, audit, and feedback
- Management support: organizational interventions, incentives, and regulations

The self-assessment model used in this study combines several aspects of reminders, peer review, and support.

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>IMCI</td>
<td>Integrated Management of Childhood Illness</td>
</tr>
<tr>
<td>IPE</td>
<td>L’Initiative pour L’Équité au Mali (Equity Initiative in Mali)</td>
</tr>
<tr>
<td>QA</td>
<td>Quality assurance</td>
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<tr>
<td>QI</td>
<td>Quality improvement</td>
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<tr>
<td>MOH</td>
<td>Ministry of Health</td>
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<tr>
<td>PHRplus</td>
<td>Partnership for Health Reformplus Project</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<tr>
<td>USAID</td>
<td>U.S. Agency for International Development</td>
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</table>
and support from the above classification scheme. Self-assessment is generally defined as the observation of behavior, evaluation of that behavior, and reaction to the evaluation (Levine 1980). One key to this definition is the element of reaction and processing of information of data in which the self-assessor must engage. Some of the cited benefits of this process are (Marienau 1999):

- Learning from experience
- Functioning more effectively
- Strengthening commitment to competent performance
- Fostering self-agency and authority

Of note is that these benefits do not include data on performance. There is considerable disagreement in the literature on self-assessment as to its use in either formative or summative ways (Best et al. 1990; Arthur 1995; Henbest and Fehrsen 1985; Flood 1998). This study used self-assessment as a performance improvement intervention, not to gather data on actual performance. More details on this are presented in the next section. Finally, one of the most notable gaps in the self-assessment literature is the general lack of information on self-assessment in developing country settings (Marquez 2001).

This study was undertaken under the auspices of the Equity Initiative in Mali (L’Initiative pour L’Équité au Mali – IPE). The IPE is supported by USAID through the Partnership for Health Reformplus Project (PHRplus) in partnership with the QA Project, the Mali Ministry of Health (MOH), and the United Nations Children’s Fund (UNICEF). The IPE grew out of a larger African and, in particular, West African regional movement to study and mitigate the adverse effects of cost recovery on utilization of health services by poor and vulnerable groups. The relationship between cost recovery and equity remains ambiguous. The World Bank, among others, has argued that charging for services that benefit only the recipient will result in a more efficient consumption of those services while increasing the availability of public resources for services with positive externalities, such as immunizations, and prenatal and maternal care (Shaw and Ainsworth 1996). In practice, however, the introduction of user payments without effective protection mechanisms may negatively impact the poor. Evidence demonstrates that the impact of cost recovery on access and equity depends on how the initiatives are designed and implemented (Leighton 1995).

In June 1997, the Economic Commission for Africa, the United Nations, several governments, and the World Bank organized a conference to study cost recovery in the social sectors. Government representatives from 17 sub-Saharan African countries, nongovernmental organizations, and bilateral and multilateral organizations participated. The conference culminated in the signing of the “Addis Ababa Consensus,” which stated that while cost recovery is necessary, it may have a negative impact on equity, quality, and access, especially for the poor. The consensus outlined 15 principles, several calling for community participation in cost recovery systems and improved access and solidarity mechanisms to protect the poor.

The IPE took this consensus statement as a hypothesis to be verified and studied to learn its dimensions. The IPE has three main objectives:
• To help the government formulate strategies to improve (financial) access to health services in a context of cost recovery
• To help bring about a higher utilization of available health services, especially by poor and vulnerable populations
• Improving access to and utilization of quality healthcare services, especially for poor and vulnerable groups

In order to accomplish these objectives, the IPE team conducted a household survey of 13,016 individuals and another of 592 providers in the public, private, and informal sectors in two sites in Mali. Households were asked questions to determine their socio-economic level, their choice of providers, how much they paid for care, and their satisfaction with care. Providers were surveyed on services offered, prices charged, solidarity mechanisms used, and quality of care offered. Providers were assessed with both interviews and direct observations.

The IPE originally did not have in its mandate to test practical approaches to improving the quality of care. However, following the baseline data collection, a number of gaps in quality of care were identified. Upon learning of these gaps, providers in one of the sites, Sikasso, indicated their desire to implement strategies to address the gaps. This indication led to the self-assessment intervention that was implemented in Sikasso over a three-month period. Peer observation and feedback were added to self-assessment because individuals often overrate themselves during self-assessment (Bose et al. 2001), and because other studies have reported that self-assessment with peer review sustains better than self-assessment alone (Kelley, E., et al. 2001; Kim et al. 2000).

PHRplus has published an earlier version of this work (Kelley, E., et al. 2002).

II. Methods

This study was a cross-sectional, simultaneous program versus control group study on the impact of self-assessment with peer feedback on compliance with quality of care standards. The two indicators of interest were compliance with standards for fever care and structural quality. Both standards were based on the Mali MOH standards for healthcare delivery. The indicators were defined as the number of tasks performed correctly (according to the standard) divided by the total number of tasks to be performed. Assessment was done by direct observation using trained observers who included clinical staff and senior evaluators who had worked with the IPE on two previous direct observation assessments.

The intervention of self-assessment was designed as a self-monitoring tool and peer feedback mechanism to improve the quality of care for fever and to improve limited structural quality elements, such as facility cleanliness and the availability of drugs. The tool had two parts. Part A asked providers 17 questions on fever care. Once a week for three months, on Mondays, providers were asked to use the self-assessment instrument following the first client who presented with a fever. Prior to the consultation, the provider was to request the assistance of a colleague, who would sit in the consultation room and use a blank self-assessment form to note compliance by the provider with fever care standards. Then, following the consultation, the provider him- or herself would fill out the self-assessment form for the consultation and discuss the results with the colleague. The peer review and feedback process was not highly structured and differed from one provider to the next. This addition of a peer assessment and feedback session...
was added in order to motivate providers to fill out the form correctly and to encourage absorption of the technical aspects of the standards.

Part B of the self-assessment form had 33 questions on background statistics on the facility and compliance with structural quality standards for the health facility. These questions were divided into the following sections: services offered by the facility; supervision and oversight of the facility; drug, commodities, and vaccine availability; quality of the physical space and equipment for the facility; and cleanliness and hygiene. This section was applied once a month by the facility in-charge with a colleague. This report concentrates on presenting the findings from the use of Part A (compliance with fever care standards) of the tool; however, selected results of Part B are also presented.

In order to ensure compliance with the self-assessment regimen, the study team used a local study coordinator who ensured that forms were dropped off at each participating facility on Fridays. He then picked up the completed forms (which once a month included Part B) on Tuesdays. This short turn-around ensured timely completion of the forms. A qualitative review of the process of implementing the study, as well as selected key informant interviews with study participants, was carried out separately by the study coordinator following the completion of the data collection. This information was used to explore some of the implementation issues surrounding self-assessment once the data analysis was completed on the impact of self-assessment.

The study examined 36 providers: 12 who were part of the program group and 24 who were part of the control group. The program group was selected by the study team in consultation with the local study coordinator. These providers were then asked to participate in the study voluntarily and none refused. Because the study did not randomly assign the providers to the program and control groups, the study team conducted analysis post-intervention to determine if the program and control groups were comparable on all key variables. In addition, to obtain information on intra-provider variance and increase reliability, each provider was observed three times as part of the post-intervention evaluation. The program and control groups were not found to differ in the type and training level of provider (p=0.123).

The sample of observations studied is presented in Table 1. We examined three client-provider interactions by provider. Five observations had to be eliminated because of data entry problems, so 103 observations were analyzed: 36 by program providers and 67 by control providers.

<table>
<thead>
<tr>
<th>Provider Type</th>
<th>Program (%)</th>
<th>Control (%)</th>
<th>Total (%)</th>
</tr>
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<tbody>
<tr>
<td>Doctor; senior nurse</td>
<td>24 (67%)</td>
<td>33 (51%)</td>
<td>57 (56%)</td>
</tr>
<tr>
<td>Nurse; other health staff</td>
<td>12 (33%)</td>
<td>34 (49%)</td>
<td>46 (44%)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36 (100%)</td>
<td>67 (100%)</td>
<td>103 (100%)</td>
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</table>

III. Findings

**Fever care.** The research team examined the difference between the program and control groups in terms of compliance with fever care standards where the unit of analysis was
the individual client-provider interaction. The data were analyzed in terms of overall compliance (total number of tasks correctly completed divided by the total number of tasks to be performed). In addition, the research team analyzed subsections of the client-provider interaction, that is, compliance with assessment standards and with counseling standards for the interaction. These are defined respectively as the total number of assessment/counseling tasks correctly assessed divided by the total number of assessment/counseling tasks.

Overall, there was a significant difference between the program and control groups in terms of overall compliance (p<0.001) and in terms of assessment of fever (p<0.005). However, there was not a significant difference between the program and control groups in terms of counseling for fever care. Table 2 summarizes these results: 103 client-provider interactions were analyzed for each comparison.

Table 2 Impact of Self-Assessment with Peer Feedback on Compliance

<table>
<thead>
<tr>
<th>Percentage of Tasks Performed According to Standard</th>
<th>Program</th>
<th>Control</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>54</td>
<td>44</td>
<td>p&lt;0.001</td>
</tr>
<tr>
<td>Assessment of fever</td>
<td>52</td>
<td>40</td>
<td>p&lt;0.005</td>
</tr>
<tr>
<td>Counseling for fever</td>
<td>46</td>
<td>41</td>
<td>Not significant</td>
</tr>
</tbody>
</table>

Notes. The performance for each provider in a particular case is based on the number of tasks that should be done according to standard for that case. The number of tasks differs by function, diagnosis, and type of patient; for example, the number of tasks for measles differs between child and adult patients, and the number of counseling tasks ranges from 4 to 7 depending on the diagnosis. Each cell in the table shows the percentage of tasks done correctly for all cases out of all the required tasks for all the patients. The total number of required tasks over all patients in all cells =103. The formula for calculating the percentage of compliance is:

\[ C = \frac{\sum_{i=1}^{n} [TC_i/TP_i]}{n} \]

Where

- \( C \) = compliance percentage
- \( n \) = # of client-provider encounters in given program or control group
- \( TC_i \) = # of tasks completed
- \( TP_i \) = total # of tasks performed (varied depending upon the condition of patient)

The research team was concerned with the clustering effect of the provider variable when using the individual client-provider interaction as the unit of analysis. We first attempted to minimize this effect by obtaining the same number of data points per provider. Secondly, we analyzed average provider compliance (overall and assessment) as an outcome of interest. We found the same relationships between the use of self-assessment and higher overall compliance (p<0.01) as well as higher assessment compliance (p<0.01).

Structural quality. Analysis was also conducted on compliance with structural quality standards. In order to analyze this, an index of overall structural quality was developed. This included the following items: (a) if the facility had a stockout of essential drugs or vaccines in the previous month; (b) if the waiting rooms at the facility had adequate seating for patients; (c) if the facility had basic equipment available (stethoscope,
thermometer, etc.); (d) if the facility had potable water, latrines, a place to wash hands, trash cans, and a place for disposing of hazardous waste; and (e) the cleanliness of the facility. An analysis of variance indicates that there is no difference between program facilities and non-program facilities in terms of compliance with structural quality standards (p=0.252).

Cost. Given the interest in developing a “low-cost” intervention for improving performance when the IPE began its work in care quality, the research team also collected information on the cost of the self-assessment intervention. This intervention had very few cost areas associated with it: transportation cost and per diem for the self-assessment coordinator (for forms distribution) and for reproduction of the forms. There were several other “one-time” costs, such as a short training session for the study coordinator. The cost analysis did not include the costs of the evaluation of the intervention. The total costs for the intervention for 36 providers was less than US$ 250, approximately $6 per provider.

IV. Conclusions and Next Steps

This study addressed an important gap in the quality improvement and self-assessment literature, namely, the use of self-assessment in a developing country setting. The data appear to suggest that self-assessment, when used in a regular fashion, can have a significant effect on compliance with standards. The attractiveness of self-assessment is, in part, due to the fact that it is useable where supervision is absent or infrequent.

However, unstructured provider interviews carried out at the end of the study by the field coordinator revealed that self-assessment is not a resource-neutral intervention. All of the providers from the program group who were interviewed cited the extra work that they had to do to comply with the intervention protocol as a burden. In particular, study participants emphasized the “long duration” of the study that “discouraged” the study participants. In addition, the reassignment of health workers who had originally signed up to be part of the study group meant that the study coordinator had to repeat some of the sensitization work that the study team had done pre-intervention. The study coordinator cited two factors as key points that helped support the implementation of the intervention: (a) the means of transportation put at his disposal by the study team, and (b) the willingness and interest of the district medical officer. Apparently, certain factors, such as these, must be in place in order to facilitate the successful use of self-assessment as a performance improvement tool.

In addition to some of these considerations, this study has certain limitations in its findings. The study was a subactivity within the larger IPE effort to address utilization of health services by poor and disadvantaged groups in Mali. Studying methods of improving the quality of care was not the original mandate of the IPE, so this study is relatively small in scope and sample size. Future research on self-assessment should include a larger sample of providers and should include non-urban and non-peri-urban districts. The lack of impact on compliance with structural quality standards may be related to the standards themselves as much as the tool. Compliance with structural quality of care standards, such as the ones used in this study, may be more difficult to achieve given the nature of the standards, which tend to depend on the collective management of the health facility and, to some extent, resources available.
This research indicates that self-assessment with peer feedback has an impact on performance. However, this impact was only measured three months post-intervention. In many cases, compliance with standards has been shown to decrease over time following training or another performance intervention (Kelley, E., et al. 2001; Kim et al. 2000). More information is needed on how performance changes over time following the use of self-assessment. Additional work could target ongoing problem areas of performance for a new self-assessment tool. Finally, future evaluations of self-assessment should employ a panel design that would give a picture of the program and control groups before and after the intervention rather than the cross-sectional design used in this study. Baseline information was gathered on study participants in both groups pre-intervention (Kelley, A.G., et al. 2001). However, the aforementioned reassignment of health workers to new posts meant that this baseline data could not be used. An analysis of the few providers who participated in both the baseline and post-intervention tests indicates no difference between the program and control groups at baseline (providers later assigned to the program group averaged 51 percent compliance at baseline compared to 58 percent for those assigned to the control group).

Despite these caveats, the data seem to indicate that self-assessment should be considered as an intervention to address low performance, particularly given its low cost. Similar work by the QA Project in Niger in 1998 (Kelley, E., et al. 2001) costed interventions for the implementation and support of the Integrated Management for Childhood Illness (IMCI). The IMCI standards for fever care were in part adopted by the Mali MOH and were used in this study. The Niger experience provides some context on performance improvement costs: IMCI training was $430 per health worker and an external assessment and feedback intervention was $108 per health worker. Future work in Mali by the IPE and PHRplus will involve disseminating these findings and trying to link self-assessment to the larger work on improving utilization of quality health services by poor and disadvantaged groups. Finally, PHRplus is working in other countries in the region, namely Ghana and Senegal, on the implementation of mutual health organizations as a health financing intervention to address equity problems in these countries health systems. The use of self-assessment could be a key element of ensuring that these community health-financing organizations offer their clients access to quality health services in the developing country context.
References


