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## Does a Standard Measure of Self-Reported Physical Disability Correlate with Clinician Perception of Impairment Related to Cancer Screening?

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### Abstract

**Background**—Adults with physical disabilities are less likely than others to receive cancer screening. It is not known, however, if commonly used measures assess elements of physical ability necessary for successful screening. This exploratory study sought to determine if patients reporting limitations in activities of daily living (ADLs) or instrumental ADLs (IADLs) are perceived by their primary care clinicians to have physical limitations that might impede cancer screening.

**Methods**—Patients at two rural primary care clinics were surveyed about ADLs and IADLs, and up-to-date status for breast, cervical and/or colorectal cancer screening. Clinicians and office staff were asked if they believed each patient had a physical limitation that might impede screening. We evaluated agreement between patient and clinician assessments.

**Results**—Clinicians believed 43% of patients with severe disability (ADLs) and 30% of patients with moderate disability (IADLs) had limitations potentially affecting screening. Agreement between patient and clinician assessments was low with the kappa statistic ( $\kappa = 0.355$ ), but with high percent negative agreement (PNA = 92.3%) and low percent positive agreement (PPA = 42.7%). Patients with ADL/IADL-related disability were less likely than non-disabled patients to be current for cervical and breast cancer screening. Patients who were viewed by clinicians as having limitations relevant for screening were less likely to be current for cervical cancer screening.

**Conclusions**—A common measure of general disability may not capture all factors relevant for cancer screening. An instrument designed to include these factors might help identify and accommodate patients with disability that potentially impedes screening.

### Keywords

Early Detection of Cancer; Disabled Persons; Healthcare Disparities; Primary Health Care; Rural Health; Health Services Research

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## INTRODUCTION

Adults with physical disabilities are often less likely than those without disabilities to receive cancer screening. Multiple studies have found that women with physical disabilities are less likely to receive screening for cervical and breast cancer.<sup>1-14</sup> Data on colorectal cancer screening in people with disabilities is more limited and less clear.<sup>2, 7, 14</sup> People with disabilities are at least at equal risk for cancer when compared with the general population, and maintenance of good health is as important for people with disabilities as it is for those without disabilities.<sup>15, 16</sup> These differences in screening, therefore, constitute an important disparity in the receipt of cancer control services.

Although current evidence demonstrates the existence of disparities in cancer control services between adults with and without disabilities, the definitions and measures of disability used in these studies may allow only a limited understanding of the underlying causes of the disparities. The studies have largely used definitions of disability based on general physical functioning<sup>2, 6, 8-10, 12, 13</sup> or measurements such as activities of daily living (ADLs),<sup>1, 5, 7, 11, 14</sup> with data drawn from surveys of the general population. These measures were not specifically designed to assess particular aspects of physical ability or environmental factors necessary for successful participation in various cancer screening services. It is possible therefore that these measures of disability do not capture important factors that may act as barriers or facilitators to the receipt of cancer screening.

By contrast, an increasingly used model of disability developed by the World Health Organization views disability as an outcome of the interaction between an individual's health conditions and environmental factors. This model, called the International Classification of Functioning, Disability and Health (ICF),<sup>17</sup> distinguishes body function from participation in life situations. In the ICF model, cancer screening would be considered a life situation. A person would be considered to have a disability with regard to cancer screening if the interaction of their physical functional ability and various environmental factors restricted their participation in cancer screening. Relevant environmental factors might be physical, social, and/or attitudinal. Viewed in this way, a particular limitation of physical functioning may or may not result in restricted participation in cancer screening, depending on the physical functions required to complete the screening test and on environmental factors. For example, although a woman with severe rheumatoid arthritis of the hands may have impaired function that constitutes a disability for many life situations, she may have no limitations with regard to screening mammography in a standard facility. And, whether or not a woman who requires the use of a wheelchair and is unable to stand without assistance is considered disabled with regard to participation in screening mammography may depend on the environmental context — whether or not she goes to a facility equipped with a machine that can accommodate her need to remain seated, whether or not her clinician believes that she has the same need for cancer screening as a woman without a mobility impairment, whether or not the clinic staff is aware of and refers to an adaptable mammography facility. In the first example, the individual's functional limitation is not directly relevant to participation in breast cancer screening. In the second example, the relevance of the individual's functional limitation depends on environmental factors.

Defining disability is a perennial challenge, although including an understanding of the effect of environment is an important improvement. A variety of definitions and measures have been developed and used in a variety of contexts for a variety of purposes, and usually concentrate on the person's limitations. Instruments have been developed for clinical uses and settings, from measuring the general physical functioning of elderly or chronically ill patients to measuring the effects of disease-specific rehabilitation treatments.<sup>18, 19</sup>

Instruments have also been developed for a variety of legal, administrative, and programmatic purposes.<sup>18, 19</sup> No single model or measure is likely to capture all the multifaceted complexity of disability; a fact that is recognized by disability scholars.<sup>20, 21</sup> This means that a measure developed for one purpose might not be ideally suited for a different purpose. As illustrated above, whether or not a particular physical impairment limits participation in cancer screening depends on the requirements of the particular screening test and various environmental factors. An instrument that measures ADLs to assess the independence of elderly patients in daily activities might not measure elements of physical functioning that are important for successfully participating in various cancer screening services. An ADL instrument might include a question about ability to transfer from a wheelchair to a bed or toilet, but the requirements of transferring to a clinic exam table may be different. Other elements important for cancer screening services, such as hip flexibility for doing a Pap test without assistance or the ability to stand unassisted for a mammogram, are not part of most standard measures of disability. However, ADL/IADL measures have long been used in clinical settings and their definitions are generally well understood by clinicians.

As part of a larger study of routine screening services for adults with disabilities, we surveyed patients at two rural primary care clinics to assess self-reported disability status using a measure of ADLs and instrumental activities of daily living (IADLs). The study called for the development of a clinic registry of patients with disabilities. When the clinicians and staff members first reviewed the list of patients who self-identified as having any level of ADL/IADL disability, they spontaneously reported that for many patients they did not agree that the patient had a disability. We recognized that this discordance might have a variety of explanations. As a next step in understanding this incidental and unexpected finding, we conducted this exploratory study with the primary objective of quantifying the degree of agreement between the ADL/IADL measure and clinician/staff perception of patients' disability with regard to the receipt of six clinical screening services, four of which relate to cancer.

## MATERIALS AND METHODS

### Study Design and Participants

We conducted an analysis comparing patients' self-reported disability status with their clinicians' and clinic staff members' perceptions regarding the presence of physical limitations that might impede cancer screening. We surveyed 316 male and female patients, aged 40 to 72 years, and 26 clinicians and clinic staff members at 2 rural primary care clinics. Patients were asked about their limitations in ADLs and IADLs, and whether they were current in screening for breast, cervical and/or colorectal cancer. Clinicians and staff were asked if they believed each patient had a physical limitation that might impede the receipt of six clinical screening services, four of which relate to cancer. We determined the level of agreement between patient and clinician assessments, and compared the proportions of patients who were current for cancer screening according to disability status using the two different methods and sources of assessment.

### Data Collection

**Patient Survey**—All patients aged 40 and older who were seen in either of the 2 participating clinics over a 3 to 4 month period were invited to participate in the study. Patients completed a 34 item survey, with questions about physical limitations, receipt of preventive services, and difficulties in receiving medical care. The survey included 5 items adapted from the Behavioral Risk Factor Surveillance System (BRFSS) survey that assess physical functioning based on ADLs and IADLs,<sup>1, 5, 7</sup> and 10 items adapted from the

BRFSS to determine up-to-date status for Pap testing, mammography, and 3 methods of colorectal cancer screening (fecal occult blood testing, sigmoidoscopy, and colonoscopy).<sup>22-25</sup> We considered a woman up-to-date for cervical cancer screening if she reported having received a Pap test within the previous 3 years and up-to-date for breast cancer screening if she reported receiving a mammogram within the previous 2 years. We considered a patient up-to-date for colorectal cancer screening if he or she reported having received any method of screening: colonoscopy within the previous 10 years; sigmoidoscopy within 5 years; or fecal occult blood testing within 1 year.

**Clinician and Staff Survey**—Clinicians and clinic staff members, unaware of patients' self-reported disability status, were presented with a list of their primary patients who had completed the patient survey. They were asked to answer the question: "Based on your knowledge of and experience with each patient on this list, do you believe that she/he has any physical limitation that might be a barrier to receiving any (1 or more) of the following preventive services: Mammography, Pap testing, Colorectal cancer screening, Cholesterol screening, Overweight/obesity screening, and/or Hypertension screening?" Possible responses were: "Yes"; "No"; "Not sure".

At one clinic, only the clinicians answered the survey. The other clinic was organized into care teams. To include the experiences of those serving in a variety of patient contact roles, the second clinic elected to answer the survey as teams. Clinicians and the staff members who normally work as teams (e.g., a physician and his/her usual medical assistant) met together and were presented with a list of their team's primary patients who had completed the patient survey. Each team was asked to reach consensus *as a team* for a single response for each patient.

### Levels of Disability

We used 4 of the patient survey items to construct an ordinal scale of severity of disability (Guttman scale), in which 4 levels of disability are above and/or below other levels, but are not required to be equidistant or additive.<sup>7, 26</sup> The first of these questions asked if the patient is "limited in any way in any activities because of a physical problem other than with seeing or hearing". If so, they were asked if they have been "limited because of this problem for 6 months or longer". They were also asked if they require help "with your routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes" (i.e., IADLs), and a final question asked if they require help "with your personal care needs, such as eating, bathing, dressing, or getting around the house" (i.e., ADLs). To be considered as having a disability, we required that the limitation was present for 6 months or longer. The 4 levels of disability were: 1) None (no to all 3 questions about activity limitations, or limitation less than 6 months); 2) Mild (limited in some way, but not requiring help with IADLs or ADLs); 3) Moderate (requires help with IADLs, but not with ADLs); 4) Severe (requires help with both IADLs and ADLs). We did not analyze those cases with contradictory responses (for example, patients who responded that they did not have any activity limitations but do require help with IADLs or ADLs), because such responses violate the assumption of the ordinal scale and may reflect data of questionable quality.<sup>7, 26</sup> An additional question that asked about use of assistive equipment was not used in calculating disability level.

### Analysis

We assessed a possible correlation between the patients' self-reported ADL/IADL disability status and the clinicians' perception of physical limitations potentially affecting cancer screening. For each of the 4 patient-reported levels of disability, we calculated the percentage of patients for whom clinicians and clinic staff perceived the presence of a

physical limitation potentially impeding cancer screening (“Yes”), the percentage for which it was perceived that no such limitation was present (“No”), and the percentage for which clinicians and staff were uncertain (“Not Sure”). We used fixed-effects one-way analysis of variance to test for a possible linear trend between increasing patient-reported levels of disability and the percentage of “Yes” responses by clinic staff.

To measure agreement between the 2 methods of assessment, we first classified self-reported ADL/IADL status and clinician perception each into 2 categories. We categorized patient-reported disability status as high (“Severe/Moderate”) or low (“Mild/None”), and clinician/staff perception of relevant physical limitations as “Yes” or “No/Not Sure”. We then calculated the kappa statistic ( $\kappa$ ) and its 95% confidence interval (95% CI). When marginal totals are symmetrically unbalanced in a contingency table, the kappa coefficient can have a low value despite a high percentage of total agreement. To better understand the relationship, therefore, we also calculated the percent agreement (PA), percent positive agreement (PPA), and percent negative agreement (PNA).<sup>27-29</sup> For each of these indices we calculated the 95% CI, using the *t*-score for small sample size for PPA.

Finally, we used the Pearson chi-square test ( $\chi^2$ ) to compare the proportions of patients with and without disability who were current for each of the 3 cancer screening services. We made these comparisons separately using each of the 2 methods of assessment. For the self assessment, we considered patients with disability to be those with a limitation in either ADLs or IADLs. For the clinician assessment, we considered patients with disability to be those perceived to have a physical limitation potentially impeding cancer screening. We conducted the analyses of agreement by hand and all other analyses using SPSS Version 17.0.0 statistical software (SPSS Inc., Chicago, 2006). Informed consent was obtained from all study participants and the study was approved by the Institutional Review Board of Oregon Health & Science University, Portland, Oregon.

## RESULTS

Three hundred fifty-three patients completed the survey. Of these, 37 provided incomplete data or contradictory responses (for example, responding that they do not have any activity limitations but do require help with ADLs or IADLs), and were excluded from the analyses. Characteristics of the remaining 316 patients are presented in Table 1. Sixty percent were women and the mean age was 52 years. Fifteen percent of patients reported limitations in ADLs or IADLs, 23% reported a milder level of disability, and 10% reported using assistive equipment. Those using equipment were evenly divided among the three levels of disability. Twenty-six clinicians and clinic staff members (henceforth referred to collectively as “clinicians”) completed the survey. The clinicians reported that they believed 9% of patients had a physical limitation potentially impeding cancer screening, and that 72% of patients did not have such a limitation.

Clinician responses for each patient-reported level of disability are presented in Table 2. The percentage of patients for which clinicians’ believed a limitation existed (“yes”) ranged from 2.5% of those patients reporting no disability to 42.9% of patients reporting severe disability. Of those patients with moderate or severe ADL/IADL related disability, only 34% were perceived by their clinicians and clinic staff members to have physical limitations potentially impeding the receipt of cancer screening. We found a statistically significant linear trend in the increasing percentage of clinician “yes” responses with each increasing level of patient-reported disability ( $p < 0.001$ ). We found a complementary trend in the decreasing percentage of clinician “no” responses with increasing patient-reported disability ( $p = 0.002$ ).

In Table 3, the patient and clinician responses have each been grouped into 2 categories and presented in a 2 by 2 format. The values for the indices of agreement and associated 95% CIs are presented below the table. Although the value of the kappa statistic was low ( $\kappa = 0.355$ ), the total percent agreement was high (PA = 86.4%), with a low percent positive agreement (PPA = 42.7%) and high percent negative agreement (PNA = 92.3%).

Table 4 presents the proportion of patients who were current for cancer screening services by disability status using each of the 2 methods of assessment. The table also shows the p-values for chi-square tests comparing the groups of patients with and without disability. The proportion of women with disability who were current for cervical cancer screening was significantly lower than the proportion of women without disability who were current, using both methods of assessment. For breast cancer screening, a significantly smaller proportion of women with disability were current compared with women without disability only for the patient self-assessed (ADL/IADL) method. We found generally lower proportions of patients who were current for colorectal cancer screening, with no significant difference between the disabled and non-disabled groups for either method of assessment.

A percent positive agreement of 42.7% means that approximately 57% of patients with disability were identified as having disability by one method of assessment only (i.e., discordant assessments). Although the absolute numbers were too small for statistical significance, we also compared cancer screening status between patients identified as having disability by the self-assessed ADL/IADL method only and those identified as having disability by clinician assessment only. A lower percentage of patients who had disability based only on self-assessed ADLs/IADLs were current for screening for cervical cancer (70.4% vs. 80.0%;  $p = 0.660$ ), breast cancer (66.7% vs. 100.0%;  $p = 0.128$ ), and colorectal cancer (46.2% vs. 70.0%;  $p = 0.253$ ).

## DISCUSSION

We found that most patients who reported having ADL disability were not perceived by their clinicians and clinic staff members to have physical limitations that potentially impede cancer screening. The patients' self-assessments (ADLs/IADLs) and the clinicians' assessments were largely in agreement regarding the presence of mild or no disability and the lack of limitations affecting screening. The two methods of assessment had poor agreement, however, regarding the presence of moderate (IADL-related) or severe (ADL-related) disability and limitations that may adversely affect cancer screening. Patients with disability, regardless of method of assessment, were less likely to be current for cervical cancer screening; and patients with limitations in ADLs or IADLs were less likely to be current for breast cancer screening. For each of the 3 cancers, we also found that a lower percentage of patients with disability based only on ADLs or IADLs were current for screening, compared with patients who were viewed as potentially having a disability based only on the clinicians' assessments.

This exploratory study does not elucidate specific reasons for the finding that clinicians do not perceive potential disability-related barriers to cancer screening for many of their patients with limitations in ADLs or IADLs, but a number of possibilities warrant consideration. First, it is possible that many people who report limitations in ADLs or IADLs have disability that is not visible to others under usual daily circumstances or, at least, in the usual context of a primary care clinic. For example, a woman who is unable to stand for more than five minutes without assistance may have no trouble participating in primary care activities in a clinic and may not be seen as having a disability relevant for off-site screening mammography. In that case, whether or not an ADL/IADL limitation is relevant for cancer screening, clinicians might not be aware of the presence of disability



unless they conduct a formal assessment. It is also possible that clinicians perceived these patients to have limitations but did not view the limitations to be potential barriers to cancer screening. This latter scenario could reflect clinician ignorance about the relevance of ADLs and IADLs for cancer screening services, but could also be consistent with ADLs and IADLs not being relevant (or only partially/indirectly relevant) for cancer screening.

The low percent positive agreement (PPA) between the ADL/IADL measure and clinician perception is consistent with the fact that the two methods of assessment are intended to assess different constructs. The measure of activities of daily living has been well validated in the general population, but not with particular reference to primary care or cancer screening services. The single question that we asked clinicians appears to have face validity regarding the receipt of these services, but has not been validated against any standard. Clinicians were asked to respond based on their knowledge and experience of the patient. It is possible and likely that clinicians' responses reflect an implicit understanding of what is required for receipt of the screening services that includes factors not captured by the ADL/IADL measure, and that they are the better source of information about disability relevant to screening. It would also appear, however, that the two means of assessment are sensitive to at least one common factor, as evidenced by the trend in clinician "yes" responses with increasing levels of ADL/IADL disability. Although the proportions were relatively low, patients with higher levels of ADL-related disability were more likely to be seen as having limitations potentially impeding screening.

Our findings comparing up-to-date status for cancer screening using the two different methods of assessment were not consistent across the three different cancers. Both methods identified patients who were significantly less likely to be current for Pap testing. Patients with ADL/IADL limitations were significantly less likely to be current for screening mammography, but those identified by clinicians were no more or less likely to be current. Neither method identified a group of patients that experienced a significant disparity in screening for colorectal cancer, although those with ADL-related limitations were less likely to be current and those identified by clinicians were slightly more likely to be current. The reason for these differences and similarities in the proportions of patients who are current for different screening services between the two assessment methods is not clear from this study. Given the low PPA between the two methods, however, we can conclude that they each identify a different group of potentially disabled patients, with a subset of patients in common. At least for the receipt of screening mammography, the two groups that were identified as potentially disabled differ regarding a disparity relative to their non-disabled counterparts. The ADL/IADL measure identified patients who were less likely to be screened and the clinician assessment did not. Because mammography is not usually conducted in the same facility as a rural primary care practice, it seems possible that clinicians' perception of a potential disability-related barrier to the receipt of mammography may be limited by their general lack of direct experience of the process.

Conversely, the similar findings between the two methods of assessment for the receipt of Pap testing may reflect clinicians' direct experience and understanding of the requirements and challenges of conducting that test. Since the two assessment methods identified different (if overlapping) groups of patients, however, we must consider that the underlying reasons for the screening disparities might be different for each group. It is possible that each method of assessment captures different factors relevant to the receipt of Pap testing. On the other hand, the disparities in Pap testing might be largely attributable to the common subgroup of women identified by both methods. These speculations cannot be resolved by the findings of this study. Future work aimed at understanding patient and clinician barriers to screening may need to include more specific physical functioning details relevant to Pap testing, and to other cancer screening tests.

Our results should be viewed with several other considerations in mind. The study was conducted to evaluate our unexpected observation, made in the course of a different study, that clinicians often did not believe that patients with self-reported limitations in ADLs or IADLs had a disability relevant to screening services. We used the results of surveys that had already been completed by patients enrolled in the original study; and, therefore, this study was not specifically powered to detect differences between patients identified as potentially having disability and those not having disability. It was also not powered to detect a difference between the two smaller groups identified as potentially having disability by only one method and not the other. Even with this limitation, our findings suggest other possible differences between patients with and without disability, within and between methods of assessment, which might be elucidated by future studies specifically designed with attention to these comparisons.

The one-question assessment used for clinicians was not formally validated. Clinicians' response to this question may reflect their actual experience of challenges, facilitators, failure, or success in providing cancer screening services for their patients, as distinct from a response based solely on an impression of physical limitations. This might limit the validity of the question as a method of screening, but it still provides a useful means of comparing the ADL/IADL measure to the experience of clinicians. In addition, the question we asked clinicians related specifically to the activity of interest, screening services in primary care, and not to general activities of daily living. In that sense, the clinician assessment may be more likely to reflect elements of physical functioning that are relevant for cancer screening services, albeit elements that are not elucidated in this study.

Our finding that patients with ADL-related limitations are less likely to receive screening for cervical or breast cancer is consistent with previous studies. The inconsistency in our study between the two different methods of assessment across the different cancers suggests that the ADL/IADL measure may not capture all factors relevant for cancer screening. The fact that clinicians did not perceive many of these patients to have physical limitations potentially impeding screening suggests the possible benefit of a validated measurement instrument designed specifically to include the elements of physical ability relevant for cancer screening in the primary care setting. The routine use of such an instrument for general or targeted screening in primary care clinics might increase clinicians' awareness of those patients who are at increased risk of not being screened for cancer and provide a basis for systematically addressing patient-specific barriers to screening. Future research could develop an instrument sensitive to factors identified as essential for the receipt of cancer screening services and compare the performance of that instrument to currently used measures of ADLs and IADLs. An instrument designed to assess potential disability in the primary care environment might be used both for research to better understand disparities in cancer control services and as a tool to address those disparities.

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**Table 1**

## Patient Demographic and Disability Information, N=316

Characteristic	No. of Patients (%)
Sex	
Women	191 (60.4)
Men	125 (39.6)
Mean age $\pm$ SD, y	52.3 $\pm$ 7.5
Patient self-assessment of disability level	
Severe <sup>a</sup>	14 (4.4)
Moderate <sup>b</sup>	33 (10.4)
Mild <sup>c</sup>	71 (22.5)
None	198 (62.7)
Requires assistive equipment <sup>d</sup>	31 (9.8)
Clinician perception of limitations potentially affecting screening	
Yes	28 (8.9)
No	226 (71.5)
Not Sure	62 (19.6)

SD indicates standard deviation.

<sup>a</sup>Severe indicates limitations in activities of daily living (ADLs) and in instrumental activities of daily living (IADLs).

<sup>b</sup>Moderate indicates limitations in instrumental activities of daily living (IADLs) only.

<sup>c</sup>Mild indicates physical limitations not reaching the level of ADLs or IADLs.

<sup>d</sup>Patients requiring assistive equipment reported mild (n=10), moderate (n=11), severe (n=10) disability.

**Table 2**

Comparison of Patient Self-Reported Disability Level and Clinician Perception of Physical Limitations Potentially Affecting Screening, N=316

Patient Assessment (n)	Clinician Assessment, n (%) <sup>a</sup>		
	Yes	No	Not Sure
Severe <sup>b</sup> (14)	6 (42.9)	6 (42.9)	2 (14.3)
Moderate <sup>c</sup> (33)	10 (30.3)	18 (54.5)	5 (15.2)
Mild <sup>d</sup> (71)	7 (9.9)	52 (73.2)	12 (16.9)
None (198)	5 (2.5)	150 (75.8)	43 (21.7)
Test of trend <sup>e</sup> , p-value	< 0.001	0.002	0.482

<sup>a</sup>Percentages are of each patient-reported disability category.

<sup>b</sup>Severe indicates limitations in activities of daily living (ADLs) and in instrumental activities of daily living (IADLs).

<sup>c</sup>Moderate indicates limitations in instrumental activities of daily living (IADLs) only.

<sup>d</sup>Mild indicates physical limitations not reaching the level of ADLs or IADLs.

<sup>e</sup>Linear trend in the proportion of each clinician response category with increasing patient-assessed disability severity.

**Table 3**

Agreement between Patient Self-Reported Disability Level and Clinician Perception of Physical Limitations Potentially Affecting Screening, N=316

Patient Assessment (n)	Clinician Assessment (n)		Totals
	Yes	No / Not Sure	
Severe / Moderate	16	31	47
Mild / None	12	257	269
<b>Totals</b>	28	288	316

**Indices of agreement:**

Kappa = 0.355 (95% CI: 0.091 – 0.618)

PA = 86.4% (95% CI: 82.7 – 90.1)

PPA = 42.7% (95% CI: 26.3% – 59.1%)

PNA = 92.3% (95% CI: 89.2% – 95.4%)

95% CI indicates 95% confidence interval.

PA indicates percent agreement.

PPA indicates percent positive agreement.

PNA indicates percent negative agreement.



**Table 4**

Proportion of Patients Up-to-Date for Cancer Screening by Disability Status with Two Different Assessments

Disability Assessment	Proportion Up-to-Date for Cancer Screening, %				p-value <sup>b</sup>
	Cervical Cancer (n=191) <sup>a</sup>	p-value <sup>b</sup>	Breast Cancer (n=191) <sup>a</sup>	p-value <sup>b</sup>	
<b>Patient<sup>c</sup></b>					
Disabled	62.9	0.028	65.7	0.041	48.0
Not Disabled	80.1		81.4		56.4
<b>Clinician<sup>d</sup></b>					
Disabled	53.8	0.040	76.9	0.883	59.1
Not Disabled	78.7		78.7		54.8

<sup>a</sup>Women (n=191) were analyzed for Pap and mammography. Patients 50 years of age and older (n=190) were analyzed for colorectal cancer screening.

<sup>b</sup>p-values are for the results of Pearson  $\chi^2$  testing comparing the proportion of disabled and non-disabled patients who were up-to-date with screening for each cancer.

<sup>c</sup>Patient-assessed "disabled" are those patients with self-reported limitations in activities of daily living (ADLs), instrumental activities of daily living (IADLs), or both.

<sup>d</sup>Clinician-assessed "disabled" are patients perceived by clinicians and staff to have a physical limitation that may impede cancer screening.