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Setting the Future Research Agenda for Translation Science

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Abstract

Objective. To set forth a future research agenda for translation science.

Data Source. Participants attending the U.S. Invitational Conference "Advancing Quality Care Through Translation Research."

Study Design. Qualitative analysis of small group discussions followed by mailed questionnaires to conference participants, asking them to rank the priorities for translation science.

Principal Findings. Interventions for Implementing and/or Sustaining Evidence-Based Practices was ranked highest, followed by Measurement and Methodological Issues; Organizational Context; Theories and Conceptual Models for Translation Science; and Advancing EBP Through Emphasis on National Strategies.

Conclusion. The research agenda for translation science is substantial. It is imperative that we work collectively to address the issues inherent in conducting translation research, and to increase empirical knowledge regarding what can be done to close the chasm between the healthcare we have and the healthcare we could have with application of evidence in clinical and operational decisionmaking.

Keywords. Translation research, translational research, research priorities, research agenda, evidence- based practice, implementation science.

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Introduction

Use of evidence by nurses and physicians is sporadic at best (Kirchhoff, 2004; Titler et al., 2003). "Between the healthcare we have and the care we could have lies not just a gap but a chasm" (IOM, 2001; p. 1). Recommendations to address this chasm include delivery of evidence-

based healthcare based upon the best scientific knowledge (IOM, 2001). The Agency for Healthcare Research and Quality (AHRQ) provides national and international leadership to close this chasm by funding translation science, Evidence-Based Practice (EBP) Centers, and synthesis reports of healthcare treatments (AHRQ, 2004). When EBPs are effectively implemented, patient outcomes improve and resource use declines (Collins Sharp et al., 2004; Farquhar et al., 2002; Titler, 2004b). There is no guarantee, however, that the evidence is used in practice, and empirical evidence of methods to promote knowledge uptake are needed (Nutley & Davies, 2000; Titler, In press).

Translating research into practice (TRIP) requires a multifaceted, systemic process of promoting adoption of EBPs in delivery of healthcare services that goes beyond dissemination of evidence-based guidelines (Berwick, 2003; Farquhar et al., 2002; Rogers, 2003a). Translation science is the investigation of methods and variables that influence adoption of evidence-based practices by individuals and organizations to improve clinical and operational decision-making in delivery of healthcare services (Kovner *et al.*, 2000; Titler & Everett, 2001a; Walshe & Rundall, 2001). Although the science of translation is young, the effectiveness of interventions for promoting adoption of EBPs are being studied, and federal funding is supporting research in this area (Collins Sharp et al., 2004; Demakis *et al.*, 2000; Farquhar et al., 2002). Additionally, more evidence is available to guide selection of strategies for TRIP than was available several years ago (Doebbeling *et al.*, 2002; Dykes, 2003; Eisenberg & Kamerow, 2001; Farquhar et al., 2002; Katz *et al.*, 2002; Vaughn *et al.*, 2002).

Objective

An invitational conference (N=77 participants), *Advancing Quality Care Through Translation Science (PI: Titler; 1 R13 HS014141-01),* provided investigators an opportunity to discuss the state of translation science, methodological and measurement issues, the impact of translation science on public policy, and a future research agenda for translation science. The conference was held at the University of Iowa October 13/14, 2003, with major support from AHRQ and Sigma Theta Tau International, as well as other professional organizations and agencies (See Table 1). One aim of the conference was to set forth a future research agenda for translation science. The methods and results of this research agenda are reported here. Conference papers have been published elsewhere (Dawson, 2004; Donaldson *et al.*, 2004; Dufault, 2004; Feldman & McDonald, 2004; Fraser, 2004a, 2004b; Jones *et al.*, 2004a; Kirchhoff, 2004; Pineros *et al.*, 2004; Titler, 2004a, 2004b; Tripp-Reimer & Doebbeling, 2004; Watson, 2004; Williams, 2004).

Methodology

A multi-phased approach was used to develop the future translation research agenda. A series of invited papers provided conference participants with a backdrop for small group discussions on priorities in translation science. Papers included "Sate of the Science of Translation Research" (Kirchhoff, 2004), followed by translation studies in long-term, acute, and primary care (Dufault, 2004; Feldman & McDonald, 2004; Jones et al., 2004a; Pineros et al., 2004; Watson, 2004). These papers described the translating research into practice (TRIP) interventions tested, methodological issues encountered, and strategies used to resolve these issues. Moderated conference participant sessions during the first day of the conference were interspersed with these and other papers (Donaldson et al., 2004; Fraser, 2004a; Titler, 2004a), resulting in lively discussions on many topics such as assessing organizational readiness, capacity for implementing evidence-based practice, measuring the TRIP intervention dose (metric), consumer empowerment as a translation intervention, and measurement of dependent variables and study endpoints. Qualitative and quantitative analytic methods

for translation science (Dawson, 2004; Tripp-Reimer & Doebbeling, 2004), and preparing scientists in translation research (Williams, 2004) were presented during day 2, with participant discussions on topics such as unit of analyses, accounting for nested designs in data analyses, community based translation research, and need for faculty mentors in translation science. The closing conference paper (Fraser, 2004b) identified ways to further translation research and, in particular, to achieve a broader translation of evidence.

Priorities for translation research were initially identified during the second day of the conference and refined through subsequent survey of conference participants. Seven groups, led by a trained facilitator, were asked to brainstorm about the future of translation science, identify topics that need investigation, and select the top three to four priority areas. The groups were directed to focus on translation topics (e.g. implementation strategies) rather than clinical topics (e.g. pain management). Each group kept detailed notes, and reported highlights of their discussion and priorities to the large group of attendees. Four members of the planning committee read transcribed notes and priority areas reported from each small group, as well as the ensuing large group discussions. Under the direction of Tripp-Reimer, a qualitative methodologist, each of the four individuals independently identified minor and major themes, compared their findings, and collectively arrived at five major areas with subtopics (minor themes/categories) under each. Major areas were: Theories and Conceptual Models; Organizational Context; Interventions for Implementing and/or Sustaining Evidence-Based Practices; Measurement and Methodologies (methodological issues/approaches); and Advancing Evidence-Based Practice Through Emphasis on National Strategies (e.g. education of work force; impacting policy decisions). A questionnaire was developed from the qualitative findings and mailed to conference participants four months after the conference, asking them to first rank the priority (1=highest to 5=lowest) of the major areas for translation science, and then rate the level of importance (1=not important to 5=very important) for each of the categories within each major area. Reminders with additional copies of the questionnaire were sent to non-responders at 3 and 6 weeks after the initial mailing. Questionnaires were returned by 72.7% of the participants.

Data Analysis

Questionnaire data were analyzed using descriptive statistics to answer the following questions: 1) How are the major areas for translation science ranked?, and 2) What is the level of importance of each category within each of the major areas?. The major areas of translation research were ranked by highest priority as defined by frequency distribution and percent. Level of importance within each major area was determined by mean and frequency distribution (percent) on a 1 (not important) to 5 (very important) scale.

Results

Sample Characteristics

Seventy-seven individuals participated in the invitational conference, representing 25 states, and all geographic regions of the U.S. Participants were selected to attend by the 9-member conference Steering Committee, based on their research, education, practice, and public policy expertise in advancing a translation science agenda. The majority were females (89%), held a doctorate as their highest degree (87%), and were from academic settings (52%) with research or education as their major role responsibility (67%).

Principal Findings

Interventions for Implementing and/or Sustaining EBPs was ranked as the highest priority area for translation science, followed by Measurement and Methodological Issues; Organizational Context; Theories and

Conceptual Models for Translation Science; and Advancing EBP Through Emphasis on National Strategies (See Table 2). Twelve participants provided written comments about the ranking with half of these comments relating to difficulty in prioritizing these major areas because all areas were viewed as important. For example, "So much needs to be done. Difficult to prioritize." "Hard to prioritize, All are essential." Note that the priority rankings of "Theories and Conceptual Models" and "Organizational Context" are reversed when rankings are determined by summing priority 1 and 2 percentages (See Table 2).

The mean level of importance for categories within each major area are summarized in Table 3, as well as the percentage of respondents who scored each category at 4.0 or greater (5=very important to 1=not important). It is helpful to view each of the categories as: *high importance* (mean level of importance score $\geq$ 4.0 with 70% or more of the respondents rating the category $\geq$4.0), *moderate importance* (mean score $\geq$ 3.5 to < 4.0 with $\geq$ 50% to < 70% of the respondents rating the level of importance $\geq$ 4.0), and *low importance* (mean score <3.5 with <50% of the respondents rating the level of importance $\geq$ 4.0). Within the priority area Interventions for Implementing and/or Sustaining Evidence-Based Practices, "determining implementation strategies most effective for which context" was rated as highly important ($\bar{x}$ = 4.6; > 90% ratings $\geq$4.0 level of importance), followed by "interdisciplinary perspective/approach", "creation of what is translated (e.g. guidelines, pathways, standards, protocols, credibility of synthesized evidence)", "methods for engagement of stakeholders in translation research," and use of "multiple strategies (e.g. education + opinion leader + audit and feedback"). Scores rated as moderately important ($\bar{x} \geq$ 3.5 and < 4.0; <70% and $\geq$ 50% of the ratings $\geq$ 4.0 level of importance) were found for seven other categories such as "electronic information technology", "communication strategies", and "prioritization of topics for implementation in nursing care based on existing guidelines and synthesis reports". In contrast, " stakeholder perspective", " consumer driven demand for evidence-based practices," and "single strategies" were rated at a low level of importance ($\bar{x}$ <3.5; <50% rating $\geq$ 4.0).

The category rated at the highest level of importance for Measurement and Methodologies was "outcome measures" followed by "dose of translation intervention(s)", "process measures", and "cost-effectiveness analysis". Three other categories were also rated as highly important (mean $\geq$4.0 and $\geq$ 70% of the respondents rating the category 4.0 or higher), and five were rated as moderately important. In contrast, four categories (full versus partial adoption of EBPs; subgroup analysis; medical record abstraction; and metasynthesis of methodological issues) were rated as low importance with fewer than 50% of the respondents scoring these categories $\geq$ 4.0.

Within Organizational Context, over 70% of the participants rated six of the seven categories 4.0 or higher with "identification of organizational elements that promote EBPs" having the highest mean level of importance (4.61). Thus, most of the categories within this major area are viewed as highly important ($\bar{x}$ score $\geq$ 4.0 with over 70% of the respondents rating them at 4.0 or greater level of importance) in translation science.

Three categories in the major area of Theories and Conceptual Models were rated highly important, and reflect priorities regarding working conceptual models to guide translation research, and inclusion of diverse theoretical perspectives to understand how the translation process differs across settings, environments, provider competencies and patient populations. Six other categories were perceived as moderately important ($\bar{x} \leq$ 4.0; percent rating $\geq$ 4.0 less than 70% and $\geq$ 50%).

Five of seven categories in the major area of Advancing EBPs Through National Strategies had mean level of importance scores $\geq$ 4.0, with

four of the categories rated ≥ 4.0 by over 70% of the respondents. Categories receiving the highest level of importance scores were "promoting allocation of funds for translation science", "preparing scientists to conduct translation research", and "preparation of the workforce (e.g. changing educational strategies to prepare the workforce/providers to use evidence in practice)." In contrast, "marketing" received a low mean level of importance score ($\bar{x}$ < 3.5) with fewer than 50% of the respondents scoring it ≥ 4.0.

Discussion

Development of a clear translation research agenda is vital to moving this young science forward and to developing improvements for practice, education, research, and public policy. The highest priority area identified by conference participants was Interventions for Implementing and/or Sustaining Evidence-Based Practices, followed by Measurement and Methodological Issues; Organizational Context; Theories and Conceptual Models for Translation Science; and Advancing EBP through Emphasis on National Strategies. These findings are congruent with recent studies and synthesis reports that identify the need for research in each of these major areas (Dopson *et al.*, 2002; Fleuren *et al.*, 2004; Greenhalgh *et al.*, 2004; Grimshaw *et al.*, 2004). For example, Greenhalgh et al 2005 found empirical studies on implementing and maintaining innovations in HCS were a serious gap in the systematic review.

Interventions for Implementing and Sustaining Evidence-Based Practices

The number of categories rated as highly and moderately important in this area reflects the complexity of implementing evidence-based practices, and testing interventions that provide empirical information about their effectiveness. Thus, high priority should be given to testing multifaceted, interdisciplinary translation interventions in a variety of settings, and to designing multi-site studies that increase understanding about what interventions work in the same types of settings (e.g. acute care) with different contextual factors. Priority should also be given to comparing the effectiveness of TRIP interventions in different types of clinical settings (e.g. acute versus home health) to understand the components of the intervention that need modification depending on type of setting. Designs using partnership models to test interventions should be advanced, with a common set of contextual factors used in these studies. Although these implementation priorities are congruent with recommendations of others (Dopson et al., 2002; Greenhalgh et al., 2004; Grimshaw et al., 2004; Kirchhoff, 2004), this study provides ratings of importance for specific implementation strategies and thus serves to prioritize areas of implementation research in translation science. Unique findings of this study is the call to prioritize research on 1) methods for engagement of stakeholders to use evidence; and 2) implementation of clinical topics for nursing practice based on existing guidelines and synthesis reports.

Measurement and Methodologies

Several categories were rated as highly important in this area. Collectively, this reflects a priority for methodological studies that focus on measurement of dependent (e.g. outcome measures, process measures) and organizational context variables, developing a TRIP intervention metric, evaluation methods, and cost-effective analyses. Demonstrating the impact of TRIP interventions on patient outcomes and process improvements is an important goal of translation science. Outcome measures and determining dose of translation interventions are of very high importance, and should be top priorities in the translation science agenda. Understanding and resolving these high priority measurement and methodological issues clearly need additional development through translation science (Estabrooks *et al.*, 2003; Fleuren et al., 2004; Grimshaw et al., 2004). Several methodological issues such as

qualitative approaches, nested designs, and new analytic methods were rated as moderately important. Among those categories of low importance were self-report measures, subgroup analysis, and determining full versus partial adoption of the evidence-based practice.

Program announcements and requests for applications from funding agencies that address these methodological and measurement issues are needed priorities to resolve this array of issues in translation science. As noted by Grimshaw et al (2004), we still lack a coherent evidence base to support decisions about which dissemination and implementation strategies to use. This is partly due to poor methodological quality of existing studies, thereby necessitating further research to improve methods for conducting studies of implementation (Greenhalgh *et al.*, 2005; Grimshaw et al., 2004). Furthermore, unresolved measurement challenges present an important and practical problem in translation science (Estabrooks et al., 2003). Institutes at NIH and private foundations need to develop portfolios in translation science that address these methodological and measurement issues. Post-doctoral studies, T32s, and K awards should focus on this important area of research. Finally, AHRQ should fund Centers of Excellence in Translation Science (beyond the 13 EBP Centers) that address these measurement and methodological issues, and that focus on testing interventions for implementing and sustaining evidence-based practices.

Organizational Context

Most categories in this area were rated as highly important, one was moderately important, and no categories were rated as low importance. Including organizational context variables in translation science was the subject of many discussions during the conference and is reflected in the high importance ratings of many of these categories including identification of organizational elements that promote adoption of evidence-based practices, creating practice cultures that facilitate change, and determining organizational readiness for evidence-based practice. Collectively, these ratings reflect the high importance of developing a better understanding of organizational context, and the use of different research models to uncover the varied organizational contextual factors that facilitate and/or hinder the effectiveness of TRIP interventions. Designing and testing organizational level interventions should also be a priority in the translation research agenda. Little work to date has been done to expand our understanding of organizational context (Denis *et al.*, 2002; Fleuren et al., 2004; Foxcroft & Colen, 2004; Greenhalgh et al., 2004). "Context is displayed as an important (and poorly understood) mediator of the diffusion of innovations" (Dopson et al., 2002; p. 43). Clearly, organizational context matters when implementing evidence-based practices. Rather than survey-based research to identify structural determinants of innovativeness in healthcare organizations, research is necessary to understand how to measure and impact this important domain of translation science (Greenhalgh et al., 2004).

Theories and Conceptual Models

Three categories in this area were rated as highly important. These reflect a priority for development and use of conceptual models in translation studies to understand diverse theoretical perspectives on how translation processes differ across settings, environments, providers, and patient populations. For example, a particular conceptual model may be effective in primary care settings with physician providers but may not be effective in home health care with nurses and nonlicensed/assitive personnel. Papers presented by TRIP investigators during the conference stimulated a great deal of discussion about development and use of conceptual models to guide translation research, reflecting the need to address this important issue. These

high importance categories are congruent with recommendations of others (Estabrooks et al., 2003; Greenhalgh et al., 2004; Grimshaw et al., 2004). "Further research is required to develop and validate a coherent theoretical framework of health professional and organizational behavior and behavioral change to inform better the choice of interventions in research and service settings" (Grimshaw et al., 2004; p. 67). The categories of moderate importance (e.g. need for definitional work, language of translation) reflect the need to address language used in translation science and to compare and contrast quality improvement, translation science and traditional research (Greenhalgh et al., 2004).

Advancing EBPs Through National Strategies

Most categories in this area were rated highly important, with promoting allocation of funds for translation science rated as very highly important ($\bar{x}$ = 4.67; > 90% of ratings $\geq$ 4.0). The high importance categories collectively reflect the need for capacity building in translation science: to prepare scientists to conduct translation research, prepare the workforce in evidence-based practice, and to allocate more funds for translation science within and across public and private funding agencies. This is congruent with the NIH roadmap and the AHRQ research agenda, but investigators need to lobby Congress for more allocation of funds for translation science. These high importance areas also have implications for study sections regarding review of grant proposals that address translation science. Using traditional scientific review criteria for translation science proposals may not be appropriate to address priorities such as 1) methods and measurement, 2) organizational context, and 3) partnership models of translation research.

Priority Research Areas for Translation Science

The Translation Research Agenda should focus in five major areas – testing interventions for implementing and sustaining EBPs; measurement and methodological issues in translation science; organizational context; theory development and testing; and national strategies to allocate funding, and prepare scientists and the workforce in translation science and EBP, respectively. Recommended research priorities for a Translation Research Agenda, are: Test implementation strategies across different types and context of care delivery to determine which strategies are most effective for which type of healthcare setting and context; Test interdisciplinary approaches (e.g. physicians, nurses, physical therapists) to implementation; Test combined/multiple implementation strategies such as education plus opinion leaders plus audit and feedback; Test various dissemination methods and implementation strategies such as electronic information technology, communication strategies, and facilitator roles; Determine how "what is translated"(e.g. guidelines, pathways, standards) and the credibility of the evidence effects adoption of EBPs; Determine best methods for engagement of stakeholders to promote use of evidence in practice; Prioritize and focus on topics for implementation in nursing care based on existing guidelines and synthesis reports; Focus on measurement and methodological issues encountered in translation science regarding process measures, outcome measures, intervention/TRIP dose, core dependent measures (e.g. process versus outcome measures), organizational context, nested designs, and qualitative methods; Focus on analytic methods in translation such as cost-effectiveness of TRIP interventions, statistical analyses for nested designs, qualitative data analyses, and newer analytic methods such as data mining; Investigate leadership and organizational context variables and measures that promote EBPs; Develop and test measures of organizational readiness for EBP; Determine ways to create practice cultures that facilitate change

Test organizational level interventions that promote EBPs; Develop and test a core set of organizational variables and measures that influence adoption of EBPs to use across

translation studies; Describe similarities and differences in translation processes across types of settings, environments, and patient populations; and Develop and test a working model of translation science that incorporates multiple factors.

Conclusion

The research agenda for translation science, as identified at this conference, is exciting and substantial. It is imperative that all healthcare professionals work collectively to address the issues inherent in conducting translation research, and to increase empirical knowledge regarding what can be done to close the chasm between the healthcare we have and the healthcare we could have with application of evidence in clinical and operational decision-making. Moreover, moving this research agenda forward requires substantial support by a range of public and private funding agencies, and, thus, lobbying for allocation of these funds is critical. Interdisciplinary, multi-site, and multinational perspectives will be necessary to address and understand implementation strategies, measurement and methods, organizational context, and theories and concepts in translation science. We are excited and committed to moving this research agenda forward, and believe there are substantial opportunities for collaboration to increase our understanding of translating research into practice.

To enact the recommended research priorities, they should be discussed and used in strategic planning of NIH Institutes, CDC, AHRQ, and CMS. These recommendations should also be incorporated in requests for applications and program announcements from federal and private funding agencies. National Advisory Committees for federal agencies, such as NIH institutes and AHRQ, should consider these recommendations among the top priorities in health services research, clinical research, and quality improvement initiatives. Translation scientists should continue to build programs of research in this area, apply for T32 training programs that emphasize translation research, and recruit doctoral and postdoctoral students interested in translation. Planning grants to address some of these priorities, such as a core set of organizational context variables, would be helpful in advancing the science. Lastly, conferences that focus on translation science, such as the annual TRIP conferences, sponsored by AHRQ (AHRQ National Conference on Translating Research Into Practice), provide a rich forum for sharing research findings and planning future multi-site studies.

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Table 1. Conference Sponsors
Agency for Healthcare Research and Quality
Sigma Theta Tau International
University of Iowa Hospitals and Clinics, Department of Nursing Services and Patient Care
University of Iowa Office of the Associate Provost for Health Sciences
University of Iowa Nursing Enterprise
University of Kentucky College of Nursing
National Association of Pediatric Nurse Practitioners
Research Dissemination Core of the Gerontological Nursing Interventions Research Center, University of Iowa College of Nursing
Veterans' Affairs Health Services Research and Development (HSR&D) Research Enhancement Award
Association of Women's Health, Obstetric and Neonatal Nurses
University of Rhode Island College of Nursing
National Institute of Nursing Research

Table 2. Results of Ranking in Major Areas

	Percent of Respondents in Each Rank					
Major Area	**Highest Priority (1)**	**(2)**	**(3)**	**(4)**	**Lowest Priority (5)**	**Rank 1 & 2 Combined**
Interventions for implementing and/or sustaining evidence-based practices	**42.6%**	21.3%	10.6%	14.9%	10.6%	64.0%
Measurement and methodologies (methodological issues/approaches)	14.9%	**31.9%**	31.9%	17.0%	4.3%	46.8%
Organizational context	4.3%	25.5%	**34.0%**	29.8%	6.4%	29.8%
Theories and conceptual models for translation science	25.5%	12.8%	14.9%	**19.1%**	27.7%	38.3%
Advancing evidence-based practice through emphasis on national strategies (e.g., education of work force; impacting policy decisions)	10.6%	10.6%	6.4%	23.4%	**48.9%**	21.2%

Table 3. Importance Ratings of Categories within Each Major Area

Categories by Major Area	Mean*	Percent**
Interventions for Implementing and/or Sustaining Evidence-Based Practices		
Implementation strategies most effective for which context.	4.57	91.5
Interdisciplinary perspective/approach.	4.22	74.5
Creation of what is translated (e.g. guidelines, pathways, standards, protocols, credibility of synthesized evidence).	4.09	72.4
Methods for engagement of stakeholders on use of evidence in practice	4.04	70.2
Multiple strategies (e.g., education + opinion leaders + audit feedback).	4.00	70.3
Electronic information technology (e.g., decision support, electronic documentation, clinical reminders).	3.86	63.8
Communication strategies (e.g., audit feedback, education, academic detailing).	3.84	66.0
Prioritization of topics for implementation in nursing care based on existing guidelines and synthesis reports.	3.84	61.7
Efficacy of new dissemination methods such as electronic medium.	3.76	59.5
Dissemination methods (e.g., websites, bedside prompts, posters).	3.70	63.8
Facilitator roles (e.g., opinion leader, change champion).	3.70	61.7
Effect of different reward structures on use of evidence in practice.	3.61	51.0
Stakeholder perspective (e.g., consumers, nurses, physicians, administrators, others)	3.37	38.3
Consumer driven demand for evidence-based practices.	3.36	42.5
Single strategies (e.g., audit feedback only).	2.59	12.8
Measurement and Methodologies (Methodological Issues/Approaches)		
Outcome Measures	4.70	93.6
Dose of translation intervention(s)	4.55	89.4
Process measures	4.36	89.4
Cost-effectiveness analysis	4.36	85.1
Evaluation methods	4.23	78.7
Dependent measures such as patient outcomes vs. process measures	4.22	80.9
Measuring organizational context	4.06	74.5
Study end-point(s)	3.80	59.5
New analytic methods (e.g., data mining)	3.70	57.4
Nested design	3.67	53.2
Qualitative approaches	3.62	55.3
Metasynthesis of methodological issues	3.60	53.2
Full vs. partial adoption of evidence-based practice	3.53	44.6
Subgroup analysis	3.50	48.9
Medical record abstraction	3.17	38.3
Self-report measures	3.15	34.1

Table 3: (continued)

Categories by Major Area	Mean*	Percent**
Organizational Context		
Identification of organizational elements that promote evidence-based practices (e.g., resources, time).	4.61	91.5
Creating practice cultures that facilitate change.	4.50	87.3
Organizational readiness/motivation.	4.35	89.4
Organizational leadership for evidence-based practice.	4.2	72.3
Consistency of measurement across studies regarding organizational variables that impact adoption of evidence-based practice.	4.16	74.5
Difference/similarities in translation processes across types of settings, environments, patient populations.	4.15	76.6
Culture (ethos/values).	3.80	59.6
Theories and Conceptual Models for Translation Science		
Development of a working model of translation that incorporates many factors and how they relate to the whole/big picture.	4.17	72.4
Use of conceptual models to guide research.	4.13	70.2
Diverse theoretical perspectives – how does the translational process differ across settings, environments, provider competencies, and patient populations?	4.09	72.3
Definitional work.	3.91	65.9
Refinement of conceptual models.	3.70	57.4
Language of translation science	3.69	57.5
Dynamic interplay between theory and action.	3.68	48.9
Comparison of models across settings	3.67	55.3
Differentiating quality improvement, translation research, and traditional research	3.59	53.2
Advancing Evidence-Based Practices through Emphasis on National Strategies (e.g., Education of Work Force; Impacting Policy Decisions)		
Promoting allocation of funds for translation science	4.67	91.5
Preparing scientists to conduct translation research	4.40	89.4
Preparation of workforce (e.g., changing educational strategies to prepare the workforce/providers to use evidence in practice)	4.36	80.8
Engaging a broader partnership in translation	4.16	72.3
Inform/impacting policy decisions	4.07	68.1
Collaboration across agencies (e.g., federal, foundations, professional organizations and consumers)	3.98	63.9
Marketing	3.40	38.3

* 1=not important to 5=very important; ** percent who rated $\geq$ 4