Impact of Mode and Order of Administration on Generic HRQOL Scores

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Mode of Administration Effects

- Telephone yields more positive HRQOL than mail administration
  - "Excellent" health reported by 30% in self-administration, 37% by phone and 44% in a face-to-face interview (Hochstim, 1967)
  - SF-36 (McHorney et al., 1994; Weinberger et al., 1996; Jones et al., 2001)
  - HUI3 was 0.05 (0.25 SD) higher for phone than mail (Hanmer et al., 2007)

Health Measurement in Patients Tracking Clinical Outcomes Study

- Self-administration (mail) of HRQOL measures at baseline, 1 month, 3 months, and 6 months post-baseline.
  - SF-36v2™, EQ-5D, QWB, HUI

SF-36 Generic Profile Measure

- Functioning

  – Physical functioning (10 items)

  – Role limitations/physical (4 items)

  – Role limitations/emotional (3 items)

  – Social functioning (2 items)

- Well-being

  – Emotional well-being (5 items)

  – Energy/fatigue (4 items)

  – Pain (2 items)

  – General health perceptions (5 items)

EQ-5D

MOBILITY

❑   I have no problems in walking about

❑   I have some problems in walking about

❑   I am confined to bed

SELF-CARE

❑   I have no problems with self-care

❑   I have some problems washing or dressing myself

❑   I am unable to wash or dress myself

USUAL ACTIVITIES (e.g. work, study, housework family or leisure activities)

❑   I have no problems with performing my usual activities

❑   I have some problems with performing my usual activities

❑   I am unable to perform my usual activities

PAIN/DISCOMFORT

❑   I have no pain or discomfort

❑   I have moderate pain or discomfort

❑   I have extreme pain or discomfort

ANXIETY/DEPRESSION

❑   I am not anxious or depressed

❑   I am moderately anxious or depressed

❑   I am extremely anxious or depressed

http://www.euroqol.org/

Cross-over Design

- Telephone and mail self-administration at 6 months post-baseline
- Participants randomized to order of mail/phone administration
- Differences in days between survey dates

  ❑ -133 to 54 days (mail – phone)
  ❑ 57% were within 3 weeks

- (1-p)/2 decrease in sample size relative to parallel group design

Sample

- 522 patients (156 heart failure, 366 cataract) at baseline sampled from UCSD, UCLA, & University of Wisconsin

- 324 patients at 6 months:
    - 94 heart failure
    - 230 cataract surgery

- Mean age ~ 66

- ~ 55% female, 87% white, 5% black, 28% high school education or less

Mean Differences

- Random intercept model (PROC Mixed)
  - Controlling for fixed effects of:
    - Gender
    - Age
    - Race
    - Education
    - Site/disease (UCSD, UCLA, Wisconsin by heart failure and cataract).

Means by Mode and Order

	Mail (1) before phone	Phone (1) before mail
MCS	53[b,c]	53[a,b]
PCS	41[b,c]	41[b]
SF-6D	71[b,c]	73[a,b]
QWB	61[a]	**57**[b]
EQ-VAS	74[a]	72[a]
EQ-5D	80[b,c]	81[b]
HUI-2	83[a,b]	79[b,c]
HUI-3	73[b]	71[b]

Means by Mode and Order

	Mail (2) after phone	Phone (2) after mail
MCS	51[c]	55[a]
PCS	39[c]	44[a]
SF-6D	69[c]	76[a]
QWB	58[a,b]	60[a,b]
EQ-VAS	69[b]	76[a]
EQ-5D	77[c]	85[a]
HUI-2	78[c]	85[a]
HUI-3	67[c]	82[a]

Means by Mode and Order

	Mail (2) after phone	Mail (1) before phone	Phone (1) before mail	Phone (2) after mail
MCS	51[c]	53[b,c]	53[a,b]	55[a]
PCS	39[c]	41[b,c]	41[b]	44[a]
SF-6D	69[c]	71[b,c]	73[a,b]	76[a]
QWB	58[a,b]	61[a]	**57**[b]	60[a,b]
EQ-VAS	69[b]	74[a]	72[a]	76[a]
EQ-5D	77[c]	80[b,c]	81[b]	85[a]
HUI-2	78[c]	83[a,b]	79[b,c]	85[a]
HUI-3	67[c]	73[b]	71[b]	82[a]

SF-36 Means by Group
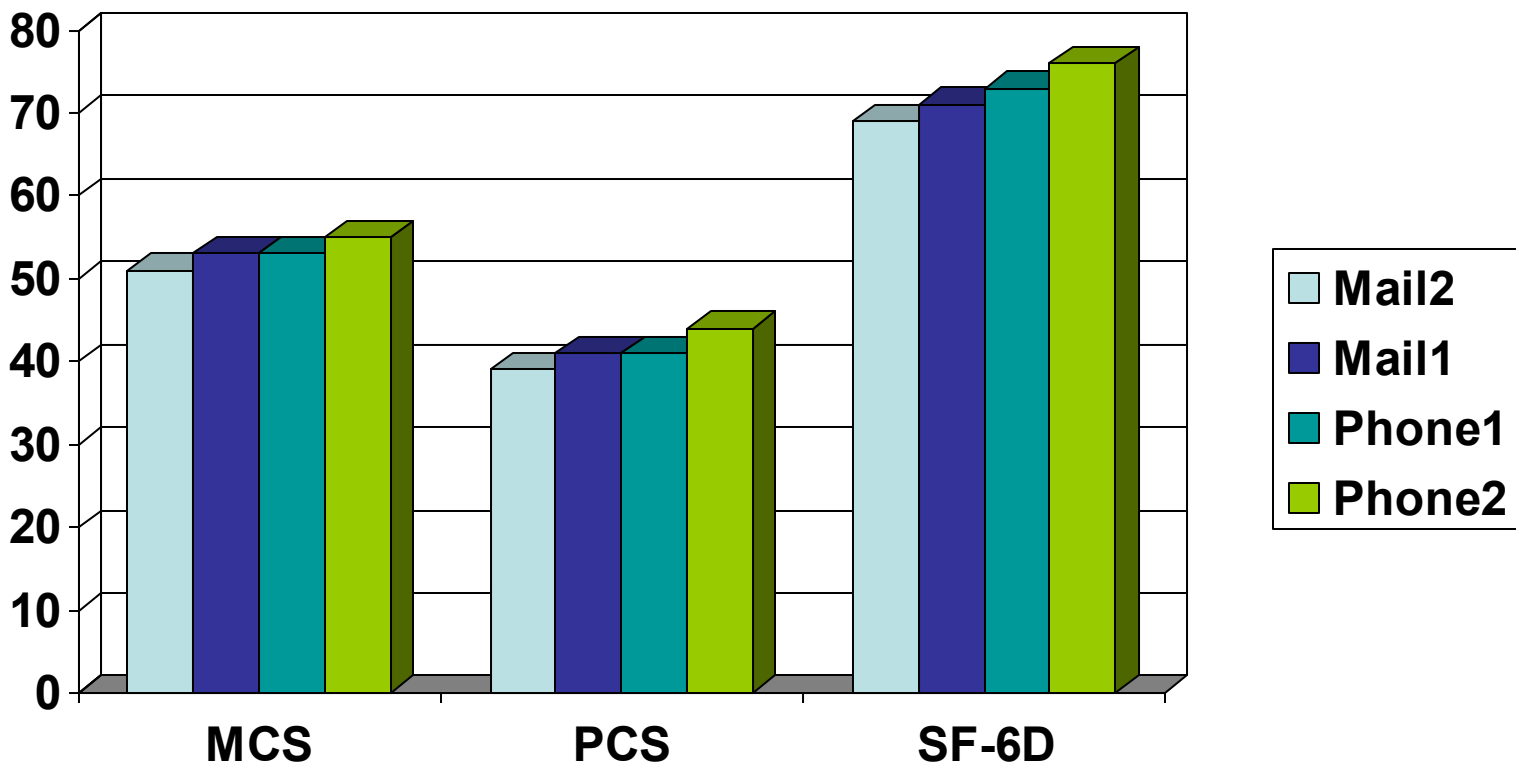
EQ-5D Means by Group
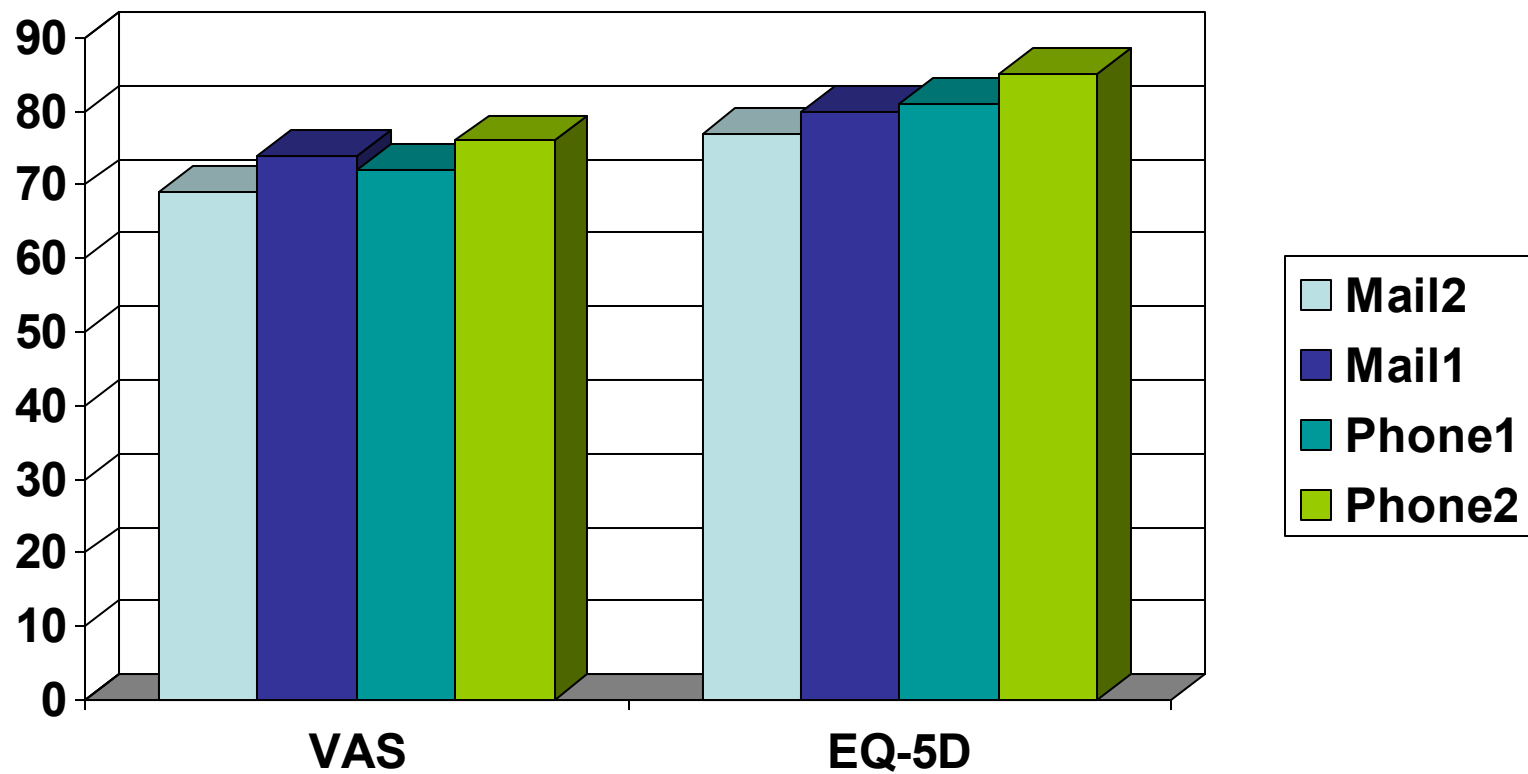
HUI Means by Group
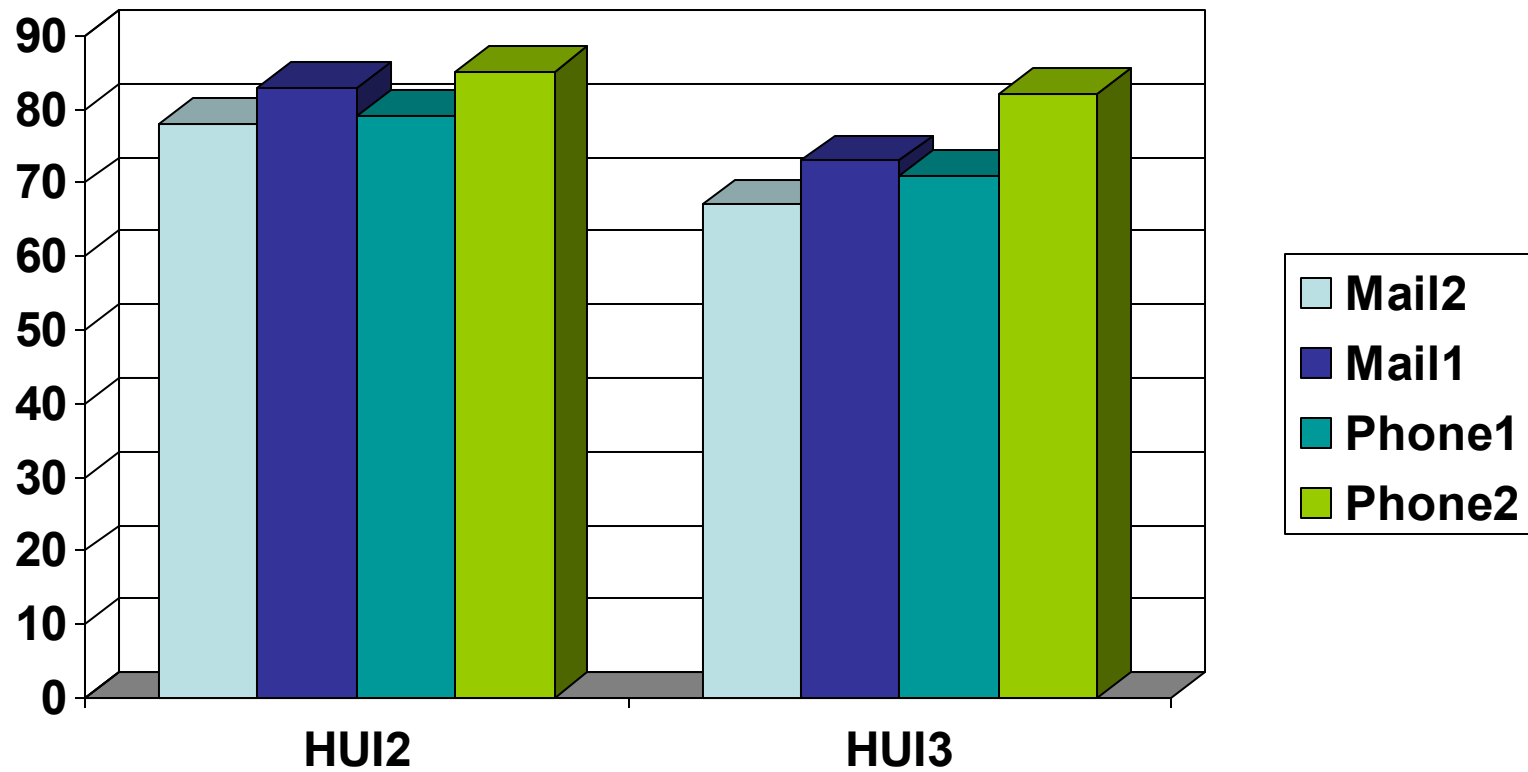
Max. Differences by HRQOL Measure

	Difference	SD
MCS	5	10
PCS	5	12
SF-6D	7	14
QWB	4	14
EQ-Vas	7	19
EQ-5D	8	17
HUI-2	8	18
HUI-3	15	25

Mean difference vs. Correlation

	ES	Pearson	ICC
PCS	0.4	0.84	0.82
EQ-VAS	0.4	0.80	0.79
SF-6D	0.5	0.77	0.75
EQ-5D	0.5	0.74	0.72
HUI-3	0.6	0.70	0.68
MCS	0.5	0.65	0.61
HUI-2	0.4	0.62	0.60
QWB	0.3	0.61	0.60

Summary of Results

- The most positive HRQOL scores occur when measures administered by phone after a mail administration

- The least positive scores occur by mail after a phone administration.
  - Effect sizes range from small to medium

- Mean differences by mode do not map to correlations

Conclusions

- Caution warranted in comparing HRQOL estimates that differ by mode and/or order of administration

  – Basis for interaction unclear

- Correlations and mean differences provide different information about equivalence by mode (individual versus group)

Odds for the 2009 NBA championship, courtesty of

Boston Celtics 7/2
Los Angeles Lakers 5/1
Detroit Pistons 6/1
San Antonio Spurs 8/1
New Orleans Hornets 11/1
Orlando Magic 14/1
Houston Rockets 15/1
Utah Jazz 15/1
Cleveland Cavaliers 16/1
Chicago Bulls 20/1
Phoenix Suns 20/1
Dallas Mavericks 25/1
Denver Nuggets 25/1
Portland Trailblazers 25/1
Washington Wizards 25/1
Golden State Warriors 40/1
Miami Heat 40/1
Atlanta Hawks 50/1
Charlotte Bobcats 50/1
New Jersey Nets 50/1
New York Knicks 50/1
Philadelphia 76ers 50/1
Toronto Raptors 50/1
Indiana Pacers 75/1
Los Angeles Clippers 100/1
Memphis Grizzlies 100/1
Milwaukee Bucks 100/1
Minnesota Timberwolves 100/1
Sacramento Kings 100/1
Seattle Supersonics 100/1

"I still have hope."

Appendices: Correlations among Measures

	MC	PC	6D	QW	VA	5D	H2	H3
MC	**65**	13	44	33	35	36	33	42
PC	30	**84**	70	49	70	65	57	57
6D	57	67	**77**	55	66	67	59	63
QW	38	58	61	**61**	52	55	47	53
VA	44	64	61	47	**80**	57	55	56
5D	47	58	64	51	60	**74**	64	65
H2	48	55	63	46	58	68	**62**	60
H3	45	61	62	49	59	68	66	**70**
Mail	on	top	pho	ne	on	left	N =	248

Correlations (mail, phone) > 0.63

- PCS with EQ-VAS (0.70 & 0.64)
- SF-6D with EQ-5D (0.67, 0.64)
- SF-6D with EQ-VAS (0.66, 0.61)
- HUI-3 with EQ-5D (0.65, 0.68)
- HUI-2 with EQ-5D (0.64, 0.68)

Means and SDs on Generic HRQOL Measures at Six Months

	Mean	SD	Minimum	Maximum
MCS	54	10	12	72
PCS	44	12	10	65
6-D	75	14	37	100
QWB	61	14	18	100
EQ-VAS	75	19	10	100
EQ-5D	83	17	20	100
HUI-2	81	18	13	100
HUI-3	74	25	-24	100