



6. Tables of tools to measure oncology nursing-sensitive outcome: Nausea and Vomiting

Table A: Description of Tools

Name of Tool	Author/Year	Domains of Factors	# of Items	Scaling	Scoring	Language
Functional Living Index Emesis (FLIE)	Lindley et al; 1992	Effect of nausea and vomiting (NV) on physical activity, social and emotional function, and eating	18 9-nausea 9-vomiting	1—7, 7-point scale	A global score for NV is obtained by summing the items.	English French Japanese
Morrow Assessment of Nausea and Emesis (MANE)	Morrow, 1984	Anticipatory and Post-treatment nausea and vomiting •Frequency during and after treatment •Duration •Severity •Time when worse	16	Severity— 6-point scale Occurrence – yes or no Duration – number of hours	Occurrence, severity, and duration of pre- and post-treatment nausea and vomiting is assessed individually.	English Chinese (www.qolid.org/public/MANE.html) Portugese (14th international conference)
Index of Nausea, Vomiting, and Retching (INVR)	Rhodes & McDaniel, 1999	Nausea, vomiting, retching (NVR), and the components (frequency/amount, duration, severity, distress) of each symptom	8-total 5-occurrence 3-distress	5-point Likert Scale	A global score for NVR. Subscale scores for occurrence (five items) and distress (three items), and for individual symptoms	English Japanese Chinese Korean

Table B: Psychometric Properties of Tools

Name of Tool	Populations	Reliability	Validity	Sensitivity	Clinical Utility
Functional Living Index Emesis (FLIE)	1- Patients with breast cancer (Bonnetterre et al., 1996) 2- 133 patients with cancer receiving cyclophosphamide-based chemotherapy (Crucitt et al. 1996) 3- 115 outpatients receiving either granisetron or ondansetron (Farley et al. 1997) 4- 338 patients (primarily with lung cancer) receiving ondansetron with other antiemetics (Lebeau, 1997) 5- 355 chemotherapy-naïve patients (Martin, 2003) 6- Japanese patients with cancer (Satou, 2002) 7- 66 radiotherapy patients (Sykes, 1997)	Cronbach's alpha 0.9 Pearson item-scale correlations 0.40 to 0.82 pretreatment and 0.81 to 0.96 post-treatment	Factor Analysis (values not reported) Pearson correlation with nausea and vomiting –0.65 and 0.68 Correlation with FLIC nausea factor 0.83	Differentiated between antiemetic groups (two items) Lower FLIE scores in patients receiving highly emetogenic chemotherapy (three items) Anticipate FLIE Japanese version will be useful in assessing change in quality of life due to nausea and vomiting (six items)	Ease of use Provides information about the effect of nausea and vomiting on functional status. Correlates with quality of life measures.

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<p>Morrow Assessment of Nausea and Emesis (MANE)</p>	<p>1- 133 patients with cancer receiving cyclophosphamide-based chemotherapy (Crucitt et al. 1996) 2- 63 female patients with cancer (breast, GU, lung and lymphoma) receiving their first course of chemotherapy (Hickock et al., 2001) 3- 72 adults aged 66–85, with solid tumors or hematological malignancies, undergoing antineoplastic therapy (Mantovani et al., 1996) 4- 133 adults, with breast, lung, colorectal, and lymphoma (Martin et al, 2003) 5- 71 chemotherapy-naïve Chinese women with breast cancer (Molassiotis et al., 2001) 6- 1,413 outpatients in four community-based practices, data collected between 1987 and 1995 (Roscoe et al., 2000) 7- 10 male and 10 female Portuguese patients with cancer (Alves-Guerreiro et al., 2003)</p>	<p>Test-retest reliability: 0.72 to 0.96 (Morrow, 1984)</p>	<p>Convergent validity 0.26 to 0.33; Divergent validity: –0.04 to 0.08</p>	<p>Expectations of developing nausea positively correlated with anticipatory nausea ($r = 0.41$, $p = 0.001$) (two items). 76% developed nausea within five days; 73% had delayed nausea during cycle 1 (two items). 81.7% experienced acute nausea and 88.7% experienced delayed nausea; occurrence of nausea/vomiting at initial treatment strongly predictive of nausea/vomiting at later treatments (six items). Portuguese version reliability 0.83. Non-significant correlations between anticipatory and post-chemotherapy nausea and vomiting (seven items)</p>	<p>Primarily used with antiemetic studies. Long (> 24 hour) time frame</p>
<p>Index of Nausea, Vomiting & Retching (INVR)</p>	<p>1- 60 Japanese inpatients with cancer receiving chemotherapy (Arakawa, 1997). 2- 17 women (59% Caucasian) with breast cancer who experienced nausea with prior chemotherapy. (Dibble et. al., 2000) 3- Adults > 65 (N = 102) and <65 (N = 25) receiving outpatient chemotherapy (Dodd et al., 1996). 4- 117 adult chemotherapy and 60 pregnant Chinese patients (Fu et al., 2002). 5- 20 children receiving chemotherapy and their parents (Lo & Haymann, 1999). 6- 159 adult patients: obstetrical (40), oncological (60), and medical/surgical (59) (Rhodes & McDaniel, 1999).</p>	<p>INVR: Spearman Correlation Total: 0.87 Individual items: 0.71 to 0.95 Equivalency: 79%–98% ($p = 0.05$) INV-2: Split-half reliability 0.90 Cronbach's Alpha 0.98</p>	<p>INVR - Spearman's correlation, $r = 0.87$ INV-2 – Spearman's correlation, $r = 0.87$</p>	<p>Decrease in nausea and vomiting in both groups (one item) Differences existed between the two groups in regard to nausea experience ($p < 0.01$) and nausea intensity (two items) Significantly greater nausea, vomiting and retching in younger patients (three items) Parent and child ratings for total scores were highly correlated (five items).</p>	<p>Ease of use. Provides information about nausea, vomiting, and retching total experience, occurrence, distress, and individual symptoms. 12-hour time frame Used with varied populations.</p>