

Tool: Doloplus-2
Tool developer: Wary, B. and The Doloplus-2 Group
Country of origin: France
Reviewed: 04/04
Revised: 06/08

Conceptualization Panel rating: 1 Revised: 2	
Purpose	The Doloplus-2 is an observational pain assessment tool developed for the multidimensional assessment of pain in non-verbal elders who experience chronic pain.
Conceptual basis	<p>Doloplus-2 was based on Doloplus developed by Wary et al (1993).</p> <p>Pain is multidimensional with somatic, psychomotor and psychosocial dimensions. Within these domains observations are made of patient behaviors that could potentially reveal pain.</p> <p>This tool bases evaluation on changes in the elder’s behavior. The individual trajectory of the elder is emphasized.</p> <p>The tool attempts to measure pain severity.</p>
Item Generation	<p><u>Study 1 (Lefebvre-Chapiro, 2001)</u> There are three subscales with a total of 10 items:</p> <ul style="list-style-type: none"> • <u>Somatic reactions</u> (5 items) Somatic complaints Protective body postures adopted at rest Protection of sore areas Expression Sleep pattern • <u>Psychomotor reactions</u> (2 items) Washing and/or dressing Mobility • <u>Psychosocial reactions</u> (3 items) Communication Social life Behavioral problems <p>Each of the ten behavioral items is leveled with four descriptions of behaviors rated on a four point scale from 0 to 3 representing increasing severity of pain. Individual item scores are summed to arrive at a total score, which ranges from 0 to 30 points. Five points is the threshold stated as indicating pain.</p> <p><u>Item generation process</u> Doloplus-2 was developed by Wary et al., (1993) based on The Douleur Enfant (Gustave Roussy), a scale for young children and was adapted for use in older adults. Doloplus-2 was developed by the Doloplus-2 Group.</p> <p><u>Study 5 (Pautex 2007)</u> Following testing, the Doloplus-2 was shortened to include only the items which were significantly associated with VAS scores. This version was also compared with the VAS. The revised version contained 3-items of the somatic dimension and two of the psychosocial dimension.</p>

	<p><i>Somatic Dimensions:</i></p> <ul style="list-style-type: none"> • <i>Somatic complaints</i> • <i>Protective body posture adopted at rest</i> • <i>Protection of sore areas</i> <p><i>Psychosocial Dimensions</i></p> <ul style="list-style-type: none"> • <i>Social Interactions</i> • <i>Behavior</i>
Content Validity	Very little information on the tool development is available in English. It is not known if the tool was reviewed by an external panel of content experts in the field of pain in elders with dementia.
-Panel Commentary	<p>The purpose of the tool is clearly expressed and appropriate. The tool is based on sound assumptions of multidimensionality of pain in elders with pain that are supported in the literature on pain in elders with dementia.</p> <p><i>While there is emerging evidence that observation or informant-based pain assessment tools can track change in degrees of pain for individual residents, current literature does not support the hypothesis that such tools can reliably differentiate between mild, moderate, and severe pain, or rate pain severity on a scale from 0-10. As with any observational tool, a small number of behaviors observed increases its specificity, but limits sensitivity in that it may not detect pain in persons presenting with less obvious behaviors.</i></p> <p>The tool covers 5 of 6 pain behavior categories in the AGS Persistent Pain Guidelines: Facial expression, verbalizations/ vocalizations, body language, changes in activity patterns or routines, changes in interpersonal interactions. However, the category mental status change is not addressed.</p> <p>Several items are unclear in the English translation of the Doloplus-2 and seem foreign when compared to the words and expressions most commonly used in English literature on pain in dementia (eg “repetitive reactive behavior “vs “agitation or aggression”; “resists all persuasion” vs. “resistance to care”. “<i>Protection of sore areas</i>” is commonly referred to as “<i>guarding</i>” in English and “<i>expression</i>” is more commonly referred to as “<i>facial expression</i>”. This indicates that the English translation needs further refinement. Although the French version may have face validity, this has not been established for the English translation. It is unclear whether the lack of clarity in items is solely due to the translation or whether this lack of clarity is also present in the original French version.</p> <p>No description of the item generation process is available in English for the original Doloplus or for Doloplus-2.</p>
Subjects Panel rating: 2 Revised: 2	
Subjects	<p><u>Study 1(Lefebvre-Chapiro, 2001)</u></p> <p>Many tests have been conducted at various sites in France and Switzerland.</p> <p>Internal consistency was tested in a pooled sample of 510 elders from all centers participating in the Doloplus-2 Group. Average age of subjects was 82.5 (± 8.0), range 66-96 years, with 173 males and 337 females.</p> <p>Inter-observer reliability was tested in two separate samples at palliative care hospitals at Metz-Thionville and Marseille respectively. The Metz-Thionville</p>

	<p>study included 43 residents with an average age of 73.5 (\pm 7.21) with 28 males and 15 females. The Marseille study included 41 residents with average age 82 (\pm8.3) with 9 males and 32 females.</p> <p>Test–retest reliability was evaluated in a mixed sample of 83 residents with 16 males and 67 females. Average age was 82.5 (\pm 8.0), range 66-96 years with short, medium and long stay hospitalization as well as palliative care. Data from these divergent settings were pooled.</p> <p>Convergent validity was evaluated in various geriatric centers or palliative care units in France and Switzerland in a mixed sample of 143 elders, 44 males and 99 females with an average age of 80.7 years (\pm 8.8), range 65-101.</p> <p>Sensitivity was tested at 11 centers. The sample included 183 elders with an average age of 80.7 (\pm 8.6), range of 65-101, 73 males and 110 females.</p> <p><u>Study 2 (Holen et al, 2005)</u> <i>Location: a nursing home in Trondheim, Norway</i> <i>Subjects: 59 nursing home residents with a ICD-10 diagnosis of dementia</i> <i>Age: The authors states that there was a “median age of 82 with a range of 39”</i> <i>Dementia: MMSE median of 9 (Q1=3, Q3=18) and 88% of the residents had a score < 24. Three residents did not complete the MMSE because they were aggressive and/or refused to answer.</i> <i>Diversity: unspecified minorities (14%)</i> <i>Pain: The presence of pain was based on information in the medical record, information from the nurse responsible for the patient or the patient’s primary contact, information from the patient when possible, and a clinical examination. Patient’s pain was scored using the NRS-11 (0-10 likert scale). Four residents received a score of 4 or greater, 28 residents received a score from 1-3, and 25 residents did not show signs of pain.</i> <i>Staff: The Doloplus-2 was completed by the patient’s nurse who collaborated with the research assistant.</i></p> <p><u>Study 3 (Pautex et al 2006)</u> <i>Location: in departments of geriatrics or psychiatry</i> <i>Subjects: 129 French speaking hospitalized residents who met the DSM-FIV criteria for dementia with a MMSE less than 11 and a Clinical Dementia Rating of 3 or greater.</i> <i>Age: 83.7\pm6.8</i> <i>Gender: 40 men, 89 women</i> <i>Cognitive Status:</i></p> <ul style="list-style-type: none"> • <i>Dementia</i> <ul style="list-style-type: none"> - <i>Alzheimer’s disease 50 (39%)</i> - <i>Mixed Dementia 44 (34%)</i> - <i>Vascular Dementia 21 (16%)</i> - <i>Other causes 14 (11%)</i> • <i>MMSE 6.8\pm3.0</i> <p><i>Pain: 57 (44%) reported experiencing pain</i> <i>Staff: Nursing staff in charge of the patient completed the Doloplus-2</i></p> <p><u>Study 4 (Zwakhalen 2006)</u> <i>Location: nursing home and psycho-geriatric wards in the Netherlands</i></p>
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	<p><i>Subjects: 144 nursing home residents including 128 demented residents and 16 somatically ill nursing home residents</i></p> <p><i>Gender: demented residents (28)21.9% men, (100) 78.1% women; somatically ill residents 5 men, 11 women</i></p> <p><i>Age: mean age dementia residents 82.4 (6.8), somatically ill 78.1(10.6)</i></p> <ul style="list-style-type: none"> • <i>Dementia: MDS Cognitive Performance Scale</i> • <i>Severe : 61(47.7%)</i> • <i>Moderate: 36(28.1%)</i> • <i>Mild: 28(21.9%)</i> • <i>Unknown: 3 (2.3%)</i> <p><i>Pain: Based on information derived from the MDS. 25% of the psycho-geriatric patient experienced pain on a daily basis and 17.2% experience pain less frequently than daily. Of these residents that experienced pain, 14.1% had mild pain, 22.7% had moderate pain, and 5.5% experienced unbearable pain at times.</i></p> <p><i>Staff: 12 nurses from three nursing homes in the Netherlands.</i></p> <p><u><i>Study 5 (Pautex 2007)</i></u></p> <p><i>Location: Geneva University Geriatric Hospital and Department of Psychiatry</i></p> <p><i>Subjects: 289 French speaking residents with a DSMIV diagnosis of dementia and 49 French speaking residents without a DSMIV diagnosis of dementia, but a MMSE of > 25.</i></p> <p><i>Gender: 133 women, 47 men</i></p> <p><i>Age: 83.7 ± 6.5</i></p> <p><i>Cognitive Status:</i></p> <ul style="list-style-type: none"> • <i>Diagnoses of Dementia (n=52, 39%)</i> <ul style="list-style-type: none"> - <i>Mixed Dementia (n=45, 34%)</i> - <i>VascularDementia (n=26, 20%), other causes (n=7, 5%)</i> • <i>MMSE 18.0 ± 7.7</i> <p><i>Pain: For those residents who reported experiencing pain its intensity as measured by the VAS (10 point scale) was 4.0 (3.0) and by the 30-point observational rating scale was 4.0 (7.0). 49% of the residents reported that they experienced pain in response to a direct pain question.</i></p> <p><i>Staff: Doloplus-2 was completed by the nurse in charge of the patient, after discussing the patient with 1 or 2 team members who had contact with the patient as well.</i></p>
<p><i>-Panel Commentary</i></p>	<p>The French version of the tool has been tested in diverse populations and settings including long term care, geriatric clinics and palliative care in France and Switzerland. There is no mention of possible cross cultural issues. Only one of the five studies presented above included ethnic groups in the sample for tool evaluation. It is not mentioned how the tool developers controlled for variability between sites. <i>Age distribution is appropriate. There is gender imbalance, but this is expected for the population.</i></p> <p><i>Using 5 subjects per tool item as the minimum requirement for this review, a minimum sample size of 50 subjects (10 items x 5 subjects) would be needed. Thus, with the exception of the sample that was used in study one for evaluation of inter-observer reliability the sample sizes listed above are sufficient for tool evaluation. In study 2 it is noted that only 4 residents in the sample actually presented with a pain score greater than 4 on a 10-point likert scale.</i></p> <p><i>Currently there is available literature written in English on the Doloplus-2; however the tool has only been tested in non-English populations. Although the evaluation of the tool in European samples is strong, there is a need to</i></p>

	<i>complete more work with the Doloplus-2 in North American populations.</i>
Administration, Scoring, Feasibility	
Panel rating: 2	
Revised: 2	
Administration, Scoring, Feasibility	<p><u>Study 1 (Lefebvre-Chapiro, 2001):</u></p> <p>Scoring of items (see under “item generation” above).</p> <p>Individual trajectory of pain is emphasized. The score is viewed as individual and is not intended for comparison between residents. Change in the score over time is important. If there is doubt about the presence of pain, a therapeutic test is recommended.</p> <p>Instructions for administration of the tool have been developed. According to tool developers the tool takes at most a few minutes to administer.</p> <p>The tool is recommended for health-care, social care or home use. Scoring by several caregivers is recommended. Also family and other persons are encouraged to contribute.</p> <p><u>Study 4 (Zwakhalen 2006)</u> <i>To assess the clinical usefulness of three scales (Doloplus-2, PACSLAC, and PAINAD) nurses were asked which scale they considered most useful and which scale they preferred after having used all of the scales for all of the participants. The nurses rated the tools using a 0-10 scale.</i></p> <p><i>75% of the nurses preferred the PACSLAC to measure pain in elderly residents with dementia. The lowest usefulness scores were reported for Doloplus-2 (mean 5.6; SD 2.2). Nursing comments regarding Doloplus-2 include:” the scale provides a more general view, a clear manual is provided, and the scale is difficult to score and interpret.”</i></p> <p><u>Study 5 (Pautex 2007)</u> <i>One nurse from each unit was trained to use the Doloplus-2 and had the responsibility to train and supervise the other nurses for at least 1 hour. Administration of the Doloplus-2 took an average of 10 (6 to 12) minutes. In this study, it was possible to complete the Doloplus-2 for 180 residents, but the item for sleep pattern was not completed in three residents.</i></p>
-Panel Commentary	<p>Method of administration is clearly described and scoring procedures are clearly described.</p> <p>Interpretation of tool score is unclear. It is not clear how the score of 5 to indicate pain was determined. The instructions indicate that if an item is inappropriate it is not scored. However, it is not noted how the overall score of the tool is affected when some items are not scored.</p> <p><i>Follow-up studies indicated that it took an average of 10 (6 to 12) minutes to administer the Doloplus-2. The tool developers have intended that the tool may be used by health care providers, personnel in social care as well as family of the elder, but training requirements to assure reliable results are not reported .It is important to note nurse comments identifying the Doloplus-2 as the least preferred tool for clinical use.</i></p>
Reliability	

Panel rating: 2 Revised: 2																
Internal consistency	<p><u>Study 1(Lefebvre-Chapiro, 2001):</u> Internal consistency (See sample description under “subjects” above.) Cronbach alpha coefficient = 0.82 If any one of 10 items is eliminated, Cronbach alpha falls below 0.82.</p> <p><u>Study 4 (Zwakhalen 2006)</u> <i>Internal consistency Cronbach alpha scores ranged from .58 to .80</i></p> <p><i>Internal Consistency (Cronbach’s alpha) of the Pain Assessment Scales</i></p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>At Rest</u></th> <th style="text-align: center;"><u>During Movement</u></th> </tr> </thead> <tbody> <tr> <td><i>Doloplus-2</i></td> <td style="text-align: center;"><i>0.75(89)</i></td> <td style="text-align: center;"><i>0.74(26)</i></td> </tr> <tr> <td style="padding-left: 20px;"><i>Somatic Dimension</i></td> <td style="text-align: center;"><i>0.7</i></td> <td style="text-align: center;"><i>0.63</i></td> </tr> <tr> <td style="padding-left: 20px;"><i>Psychomotor Dimension</i></td> <td style="text-align: center;"><i>0.8</i></td> <td style="text-align: center;"><i>0.77</i></td> </tr> <tr> <td style="padding-left: 20px;"><i>Psychosocial Dimension</i></td> <td style="text-align: center;"><i>0.63</i></td> <td style="text-align: center;"><i>0.58</i></td> </tr> </tbody> </table> <p><i>The pool of nurses that offered verbal critiques for the tools commented that “it is questionable whether all items of the Doloplus-2 are relevant to detect pain.”</i></p> <p><u>Study 5 (Pautex 2007)</u> <i>Internal consistency was lower in residents with dementia (r=0.67) than in residents who were cognitively intact (r=0.84). Internal consistency scores were lowest for the items expression (r=0.82) and mobility (r=0.82). Internal consistency was slightly lower for the shortened version or the Doloplus-2 (Cronbach alpha=0.71) than the complete version (Cronbach alpha 0.85).</i></p>		<u>At Rest</u>	<u>During Movement</u>	<i>Doloplus-2</i>	<i>0.75(89)</i>	<i>0.74(26)</i>	<i>Somatic Dimension</i>	<i>0.7</i>	<i>0.63</i>	<i>Psychomotor Dimension</i>	<i>0.8</i>	<i>0.77</i>	<i>Psychosocial Dimension</i>	<i>0.63</i>	<i>0.58</i>
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Interrater reliability	<p><u>Study 1(Lefebvre-Chapiro, 2001):</u> Interobserver reliability was tested in two separate studies at palliative care hospitals at Thionville and Marseille respectively:</p> <p>For both studies the paired sample t-test was used to analyze the data.</p> <p><u>Thionville</u> (See sample description under “subjects” above.) Scorer A: Total average score 11.4/30 (± 5) Scorer B: Total average score 10.9/30 (± 4.8)</p> <p><u>Marseille</u> (See sample description under “subjects” above.) Scorer A: Total average score 17.3/30 (± 4.9) Scorer B: Total average score 17.1/30 (± 4.6).</p>															
Test-retest reliability	<p><u>Study 1(Lefebvre-Chapiro, 2001):</u> Test-retest reliability is reported. (See sample description under “subjects” above.)</p> <p>Pain scores were measured at 2 times at 4 hour intervals. T-test was conducted: T1: average score: 9.33/30 (±5.17) T2 (+ 4h): average score: 9.36/30 (±5.47) Student’s t-test was not statistically significant.</p>															

	<p><u>Study 5 (Pautex 2007)</u> <i>Test-retest evaluation was completed on subsamples of 20 residents from the same hospital units who had the same characteristics and stable chronic pain. The first Doloplus-2 was completed on a given day and then the second Doloplus-2 was completed one day after the first one. The interclass correlation coefficient between the first and second assessment was 0.96.</i></p>
<p>-Panel commentary</p>	<p>For study 1, little information is available about the sample that was used to arrive at the results for internal consistency, especially as relates to cognitive status of residents. There is also no information provided regarding raters of the residents for this study. However, the Cronbach alpha coefficient is appropriate for the data and the correlation coefficient is strong. <i>Subsequent studies provide support of internal consistency with good correlations.</i></p> <p>In the sample used to test inter-rater reliability, no information on the cognitive status of the residents or a description for the raters is provided. Here, the data do not appear to be analyzed by subject. Average scores and t-tests do not adequately assess interrater reliability of the tool. Data from two raters independently and simultaneously assessing one subject would be considered appropriate. No correlation coefficient is provided. <i>Subsequent studies do not contribute to inter-rater reliability.</i></p> <p>In study 1, scores from the same subject measured at two different times were measured. The interval of 4 hours was appropriate if no intervention occurred. Average scores were calculated and Student's t-test was conducted. However, data on the t-test were not reported. Moreover, correlation would have been more appropriate. Information on how the test-retest was conducted is limited. No information is provided as to whether subjects received any pain treatment between measurements. There is also no information on the qualifications of the raters. Data were pooled from various settings. There is no report on how the tool developers controlled for variability across settings.</p> <p><i>The subsequent study that contributed to test-retest shows a strong interclass correlation coefficient of .96. The repeat test for test-retest evaluation was completed on the following day, which is a fairly short time frame for retesting. However, there is also a concern for receiving stable pain measures if test-retest is completed following a longer time frame. There is still a need for data from English speaking populations.</i></p>
<p>Validity: Criterion or construct Panel rating: 1 Revised: 2</p>	
<p>Construct validity/ Criterion related validity</p>	<p><u>Convergent validity</u></p> <p><u>Study 1 (Lefebvre-Chapiro, 2001):</u> (See sample description under "subjects" above.) Doloplus-2 and VAS scores were compared. VAS scores varied from 0 to 10 with an average score of 5.46 (± 2.27). The convergent validity of the VAS and Doloplus-2 scale was significant (p<0.001). Sensitivity: (See sample description under "subjects" above.) D0: 10.6 (± 5.3); D1: 7.5 (± 4.4); D7: 4.9 (± 4.2).</p> <p><u>Study 3 (Pautex et al 2006)</u> <i>Each patient was given the Verbal Rating Scale (VRS), the Faces Pain Scale</i></p>

(FPS), and the Horizontal Visual Analog Scale (HVAS). Residents were asked to position a sliding marker to indicate the level of pain they were currently experiencing. Residents were considered to have demonstrated comprehension of the scale if on both occasions they were able to explain its use and could correctly indicate which position corresponded to no pain at all and which position corresponded to the most severe pain. On each occasion the explanations were repeated up to three times before subjects were considered unable to comprehend a scale. On the same day the nursing staff in charge of the patient completed the Doloplus-2.

The Doloplus-2 correlated only moderately with self-assessment ratings ($r=0.26$ to 0.63 , $P<.001$) in residents reporting pain. For residents reporting pain using the VRS, HVAS, and FPS, the median pain intensity scores (interquartile range) were 3.0(2.0), 3.0(3.0), and 2.0(2.0) respectively. Using the Doloplus-2 to measure pain the median pain intensity (interquartile range) was 9.0(5.0). The observational rating scale tended to underestimate severity when compared with all three self-assessment scales.

Correlation between Different Scales:

	Spearman rho					
	<u>First Assessment</u>			<u>Second Assessment</u>		
	VRS	HVAS	FPS	VRS	HVAS	FPS
Doloplus-2	0.47	0.25	0.36	0.63	0.24	0.48

Study 4 (Zwakhaleh 2006)

To examine construct validity of the Doloplus-2, pain vs. non-pain groups were created based on information about “no pain” versus “daily pain” derived from the MDS scale. The mean total scores for the “daily pain” group were 9.8(6.0) and the “no pain” group had a mean of 5.1(3.9).

The Doloplus-2 was then compared to the following pain assessment tools: VAS, VRS, PACSLAC, and PAINAD. Low scores were found for the Doloplus-2 as compared to the other pain assessment tools which had correlations scores ranging from 0.69 to 0.89.

Pearson Correlation Between Scales

	<u>DOLOPLUS-2</u>
VAS rater 1	0.29
VRS	0.36
VAS nurse	0.33
PACSLAC	0.29
PAINAD	0.34

Study 5(Pautex 2007)

Convergent Validity was evaluated between the VAS and the Doloplus-2. Residents were considered to have understood the VAS if on two occasions they were able to explain its use and could clearly explain which position on a sliding vertical marker represented no pain and the most severe pain. Following the self assessments the nurse that was in charge of the patient completed the Doloplus-2.

The Spearman’s coefficient was equal to 0.46 for the correlation between the Doloplus-2 and the VAS. The correlation was higher for residents without

	<p><i>dementia, 0.68 vs. 0.38 in residents with dementia. Half of the included residents reported no pain so a sub-analysis that included only residents who reported pain was performed. The results showed a significant correlation between Doloplus-2 and VAS (Spearman coefficient=0.36, p=0.000).</i></p> <p><i>In a multiple linear regression model Doloplus-2 predicted 41% of the variability of pain intensity measured by the VAS. Doloplus-2 predicted 69% of the VAS score in residents without dementia and 36% in residents with dementia. The somatic dimension explained 36% of the variability and the psychosocial dimension explained 5% of the variability, but psychomotor dimension barely contributed.</i></p> <p><i>The intensity of pain measured by the VAS was mainly associated with the somatic dimension of Doloplus-2 in particular the items: somatic complaints, protective body postures, and protection of sore areas. Two items of the psychosocial reaction were also statistically significant (p < 0.05): social interaction and behavior. These items were then used to develop a shortened version of the Doloplus-2 to compare with the VAS. The correlation between the intensity of pain measured by the VAS and the score of the shortened version of the Doloplus-2 was 0.48. Here the correlation was also better in residents without dementia (0.71 vs. 0.39 in residents with dementia).</i></p> <p><u>Criterion Validity</u></p> <p><u>Study 2 (Holen et al. 2005)</u></p> <p><i>Pain ratings by experts using the NRS-11 were set as the standard for criterion validity. A regression analysis was performed to evaluate how well the Doloplus-2 could predict the expert's scores using two methods: regression analyses of each item's isolated explanation value of the expert score and step wise regression analysis to explore the consecutive contribution of the different Doloplus-2 items.</i></p> <p><i>The experts rated 25 residents as pain free. Among these 6 had a Doloplus-2 score of 0 and 19 had <5 leaving five false positives with scores of 5 and 6. (Of the 59 cases the Doloplus-2 made false positives on 10 occasions).</i></p> <p><i>A regression analysis was performed to explore how well the Doloplus-2 could explain the experts' pain scores. The unstandardized residuals had a SD=1.02. The Doloplus-2 explained 62% of the variance of the pain distribution in this population. Stepwise regression analysis demonstrated that facial expressions explained 48% of the variance of the expert score alone. Facial expressions, protective body postures adopted at rest, somatic complaints, and communication explained 68% of the total variability in the experts' scores in the study population.</i></p> <p><i>For 85% of the assessments, the Doloplus-2 score multiplied by 0.25 beta corresponded to the expert score ± 1 unit on the NRS scale.</i></p>
<p>-Panel commentary</p>	<p><i>There has been a considerable amount of evidence supporting the validity of the Doloplus-2 in subsequent studies. However, all of the studies have been in foreign populations and further validation needs to be done in English. The surprisingly high correlation between the Doloplus-2 and self report rating scales as reported in Study 3 are inconsistent with the finding in the literature. Most studies report correlations of approximately .30 between observational tools and self-report assessments.</i></p> <p><i>Use of the VAS by elders with dementia as a gold standard for comparison is questionable. If the VAS is used by the caregiver, question also remains</i></p>

	regarding ability/accuracy of health care provider judgments of severity in this population.
Summary of panel evaluation of pain assessment tool	
<p>The Doloplus-2 is a comprehensive tool for assessing pain in nonverbal elders. The tool addresses many key indicators noted in the literature and AGS Guidelines. <i>The tool is conceptually supported.</i> Via their website information the tool developers report extensive testing in Europe. <i>High correlations are reported between the Doloplus-2 and self-report assessment tools and the correlations that are reported are significantly higher than typically shown in the literature.</i> <i>Internal consistency has been adequate with good correlation values.</i> <i>The validity of the tool is supported in subsequent studies.</i> <i>It must be noted that in one study nurses in the clinical setting identified the tool as the least preferred method of pain assessment when compared to other similar observational tools.</i> However, information in English is limited and available reports do not provide sufficient detail on which to base sound judgment of the tool evaluation. Translation issues are evident and further study or description regarding the use of Doloplus-2 in English-speaking populations is needed.</p>	

Sources of evidence

Doloplus-2 website: <http://www.Doloplus-2.com>

Holen, J., Saltvedt, I., Fayers, P., Bjornnes, M., Stenseth, G., Hval, B., et al (2005). The Norwegian Doloplus-2, a tool for behavioral pain assessment: translation and pilot validation in nursing home residents with cognitive impairment. *Palliative Medicine*, 19, 411-7.

Lefebvre-Chapiro, S. & the Doloplus-2 group. (2001). The Doloplus-2 scale – evaluating pain in the elderly. *European Journal of Palliative Care*, 8(5), 191-194.

Pautex, S. Michon, A., Guedira, M. Emond, H., Le Lous, P., Samaras, D. et al (2006). Pain in severe dementia: Self-assessment or observational scale? *JAGS*, 54, 1040- 1045.

Pautex, S., Herrmann, F., Michon, A., Giannakopoulos, P., Gold, G. (2007). Psychometric properties of the doloplus-2 observational pain scale and comparison to self-assessment in hospitalized elderly. *Clinical Journal of Pain*, 23(9), 774-9.

Zwakhalen, S., Hamers, J., & Berger, M. (2006). The psychometric quality and clinical usefulness of three pain assessment tools for elderly people with dementia. *Pain*, 126, 210-220.

Key to panel rating

3= Available evidence is strong

2= Available evidence supports need for further testing

1= Available evidence is insufficient and/or tool revisions are needed

0= Evidence is absent

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