

NIOSH Occupational Factors Impacting Diabetes Decision Log, Condensed

February 2018

Guideline Excerpt

...Clinicians should ask about relevant features of current job(s) that are recognized to impact diabetes management: shift work, ability to take breaks, exposure to heat or temperature extremes, ability to eat/drink/take medication as needed, and level of physical activity. The clinician does not have to ask the patient about each job feature individually, but could pose a comprehensive question and gather ‘yes’ responses to any given job feature. If the patient answers “yes” to any of the features, then the CDS would populate a menu of educational materials to educate/counsel concerning management based on the relevant job characteristics. The clinician could click on one or more materials to be printed for the patient.

Programming should be in place such that this CDS does not appear if the patient has been asked about these job features within the past 6 months (as with HgbA1C level, this is the recommendation of the SME’s but the time frame may be altered based on clinic experience and patient population). ...

Reference: Allen, A, Welch, L, Kirkland, K, et al. Development of a Diabetes Mellitus Knowledge Resource for Clinical Decision Support Assisting Primary Care Physicians With Work-Related Issues. *J Occup Environ Med.* 2017;59(11): e236-e239.

Artifact Development Decision Log

“Atomized” Word or Phrase from the Guideline	Translation (which informed artifact development and specification)
“clinicians”	Providers (e.g. physicians, nurse practitioners, physician assistants) and/or other clinical members (e.g. nurses) of the provider team
“relevant features”	Characteristics determined to be included in an occupational factor assessment including shift work, exposure to heat or temperature extremes, level of physical activity, difficulty taking medications or eating regularly, and safety sensitive activities. .
occupational factors	Characteristics in the work environment determined to impact diabetes management (determined to be included in an occupational factor assessment including shift work, exposure to heat or temperature extremes, level of physical activity, difficulty taking medications or eating regularly) or in which incapacitation of the employee could place the employee or others at risk of harm (safety sensitive occupations)
“current job(s)”	The intent of the guideline is to assess each position of employment separately however in the artifact when the questions are posed they pertain to all jobs
“recognized”	Acknowledged in the <i>Using Electronic Health Records and Clinical Decision Support to Provide Guidance on Occupational Factors Which Impact Diabetes: A Final Knowledge Resource Report</i> (December 4, 2015)

<p>“impact diabetes management”</p>	<p>Having a strong effect on a person’s ability to manage his/her diabetes</p>
<p>“shift work”</p>	<p>The details of what will align with a “yes” response in defining shift work are being researched by the Georgia Tech Research Institute and NIOSH. For the purposes of this artifact the question will be posed as “shift work” without any interpretations. Additionally, the feasibility of including “shift work” as a standard code in LOINIC or PHIN VADS is also being researched, thus a dummy (i.e., temporary) code is used in this artifact. A response of “yes” or “no” is expressed using SNOMED-CT codes. Updates to these issues may be incorporated once research is completed.</p>
<p>“exposure to heat or temperature extremes” “temperature extremes”</p>	<p>These statements are attempting to elicit a diabetic’s exposure to heat or cold which impact diabetes management. The occupational factor including both in this artifact is “temperature extremes”. The details of what will align with a “yes” response in defining temperature extremes are being researched by the Georgia Tech Research Institute and NIOSH. For the purposes of this artifact the question will be posed as “temperature extremes” without any interpretations. Additionally, the feasibility of including “temperature extremes” as a standard code in LOINIC or PHIN VADS is also being researched thus a dummy (i.e., temporary) code is used in this artifact. A response of “yes” or “no” is expressed using SNOMED-CT codes. Updates to these issues may be incorporated once research is completed.</p>
<p>“level of physical activity”; “heavy physical activity”</p>	<p>These statements are attempting to elicit a diabetic’s exposure to physically demanding work which can impact blood sugar and insulin need. The occupational factor including both in this artifact is “heavy physical activity”. The details of what will align with a “yes” response in defining “heavy physical activity” are being researched by the Georgia Tech Research Institute and NIOSH. For the purposes of this artifact the question will be posed as “heavy physical activity” without any interpretations. Additionally, the feasibility of including “temperature extremes” as a standard code in LOINIC or PHIN VADS is also being researched thus a dummy (i.e., temporary) code is used in this artifact. A response of “yes” or “no” is expressed using SNOMED-CT codes. Updates to these issues may be incorporated once research is completed.</p>
<p>“difficulty taking medications or eating regularly”, “ability to take breaks”, “ability to eat/drink/take medication”</p>	<p>These statements are intended to assess a diabetic’s’ ability to regulate his/her food intake, have a ready supply of water, monitor blood sugars, and take insulin as needed. The occupational factor including these three statements in this artifact is “difficulty medications or eating”. The feasibility of including “difficulty medications or eating” as a standard code in LOINIC or PHIN VADS is also being researched thus a dummy (i.e., temporary) code is used in this artifact. A response of “yes” or “no” is expressed using SNOMED-CT codes. Updates to these issues may be incorporated once research is completed.</p>

<p>“safety sensitive activity”</p>	<p>Incapacitation of the employee performing these activities in a job could place the employee or others at risk of harm (e.g. firefighters, police officers, locomotive engineers, and commercial truck drivers). Note: although this concept is not expressed in the guideline text, it is included in the NIOSH flow diagram and should be included in the occupational factors assessment. The CQL code currently represents the question of “safety sensitive activity” with a dummy (i.e., temporary) code. A response of “yes” or “no” is expressed using SNOMED-CT codes. Updates to this concept may be incorporated once research is completed.</p>
<p>“The clinician does not have to ask the patient about each job feature individually, but could pose a comprehensive question and gather ‘yes’ responses to any given job feature”</p>	<p>This artifact asks each question individually to ensure each occupational factor is assessed independently. This will allow the appropriate educational materials pertinent to that particular factor to be displayed for the clinician’s selection.</p>
<p>“yes”</p>	<p>SNOMEDCT Code 373066001 (codes may be more granular in the future)</p>
<p>“no”</p>	<p>SNOMEDCT Code 373067005 (codes may be more granular in the future)</p>
<p>“this CDS does not appear if the patient has been asked about these job features within the past 6 months”</p>	<p>The artifact displays an error message if at least one of the occupational factors does not have a date as to when it was last assessed (“ERROR: At least one occupational factors response was missing”). It displays a warning message if at least one of the factor’s last assessment date is greater than 6 months “WARNING: At least one occupational factors response is more than 6 months old and should be re-assessed”.</p>
<p>“populate a menu of educational materials to educate/counsel concerning management based on the relevant job characteristics”</p>	<p>A comprehensive drop-down list of pertinent educational materials for any “yes” answer is displayed for the provider’s selection</p>
<p>“as with HgbA1C level, this is the recommendation of the SME’s but the time frame may be altered based on clinic experience and patient population”</p>	<p>This artifact does not currently contain a parameter for time frame. It aligns directly with the aforementioned “6 month” timeframe. Future implementers may choose to adjust the time frame based on their preference or organization’s policy.</p>

Methodology for documenting decisions:

Tso, G. J., Tu, S. W., Oshiro, C., Martins, S., Ashcraft, M., Yuen, K. W., ... Goldstein, M. K. (2016). Automating Guidelines for Clinical Decision Support: Knowledge Engineering and Implementation. *AMIA Annual Symposium Proceedings, 2016*, 1189–1198. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5333329/>