



## The Interventions and the Study Participants

The goal of the systematic review was to identify any evidence-based interventions that might be relevant to employers or service providers and did not involve pharmaceutical or medical treatment. Knowing more about non-medical approaches would allow for more feasible implementation within the workplace settings most pertinent to the KTER Center's target audiences.

Multicomponent interventions were found to be the most effective approaches to facilitate employment. These results were consistent with an earlier Cochrane Systematic Review conducted on this topic (de Boer et al., 2011). While often taking place in a medical setting, interventions that incorporated information or educational training, counselling or coping skills sessions (whether individual or group), and also physical exercise components seem to be promising features for practitioners to integrate into current rehabilitation and adjustment efforts for cancer patients. With respect to vocational interventions specifically, other research suggests that on-the-job supports, interview training, and strategies to cope with symptoms while working, can directly impact return-to-work and employment (Tamminga et al., 2013).

**Inclusion criteria** One set of criteria for including studies in the review related to population. The review focused on studies that included adults, aged 18 years or older, who had a past or present cancer diagnosis. Studies of adults who had been diagnosed with pediatric cancer were excluded. These individuals may have participated in interventions as children, such as high school transition to work programs. Participating in these programs might affect employment outcomes, but people who develop cancer as adults would not have participated in them.

A second set of criteria related to research design. As with many systematic reviews that follow the protocol of the Campbell Collaboration, the review team included in the meta-analysis only studies that used the most rigorous designs: randomized controlled trials (RCTs) and quasi-experimental designs (QEDs). RCTs use random assignment to a treatment or control group whereas QEDs are missing one of these components. Hence, they are not true experimental studies such as an RCT.

The third set of criteria related to the nature of the intervention. Interventions were included if they measured gainful employment, return to work, wages, or hours worked as an outcome. Interventions were behavioral, psychological, educational, or vocational in nature, including workshops, training, or counseling targeted towards employment initiation, return-to-work, or decreasing absenteeism and use of work disability or sick leave. Interventions had to involve an element apart from medical or physical treatment (e.g., exercise, surgery, pharmaceutical treatment). ■■■■■■■■■■

## Results of the Meta-Analysis

After conducting an exhaustive search of relevant studies that measured the effect of an intervention on the employment outcomes of individuals with cancer, 12 studies were identified that met the inclusion criteria. Ten studies measured employment status (employed vs. unemployed). Two main measures were used: employment status or return-to-work. Since studies that measured employment status did not distinguish whether participants had prior employment before cancer diagnosis or treatment, these measurements were combined into a single measure of gainful employment status. The results of the studies were synthesized in a random effects meta-analysis using the odds ratio (*OR*) effect sizes. The weighted mean effect size for employment status was  $OR = 1.71$  favoring the intervention groups. To better interpret the odds ratio, the mean odds ratio was converted to percentages. First, a baseline employment rate was calculated for all the comparison groups across studies, which was 60%. The adjusted odds ratio of 1.71 translates to an employment rate of about 71% for intervention participants, a non-trivial change. The interventions did not, however, affect the number of hours worked or the number of leave days taken. ■■■■■■■■■■

## Comparing the RCTs to the QEDs

The lead author performed an exploratory analysis to distinguish effects of the RCT from the QED studies.

For RCTs, the weighted mean effect size for employment status was  $OR = 1.44$  (Confidence Interval or  $CI = 0.99$  to  $2.09$ );  $p = 0.058$ . The mean odds ratio of 1.44 translates to an employment rate of about 68% for intervention participants, compared to the baseline 60% for comparison group participants described previously.

For QEDs, the weighted mean effect size for employment status was  $OR = 2.18$  ( $CI = 1.32$  to  $3.60$ ),  $p = 0.002$ . The mean odds ratio of 2.18 for the quasi-experimental studies translates to an employment rate of about 77% for intervention participants, compared to the baseline rate of 60% for the comparison group participants. Although the mean effect size for QEDs was larger than that for the RCTs, there is no statistically significant difference between the two types of experimental designs ( $p = 0.19$ ).

This result provides a potentially troubling indication. The QED studies may be over-estimating intervention effects on employment whereas the RCT studies, when examined alone, result in a non-significant mean effect size. Therefore, caution needs to be exercised when interpreting the effectiveness of these interventions for increasing employment. ■■■■■■■■■■

## “What works”? For whom? In what context?

This systematic review found limited evidence of sufficient methodological rigor to confidently assess the effects of interventions for employment of individuals with cancer. Overall, the RCT studies were few in number, and even with quasi-experimental studies, sample sizes were relatively small (ranging from treatment groups of 7 to 172 participants). Moreover, the majority of studies lacked information about the study elements needed to assess risk of bias or evidenced high risk of bias. One particular study characteristic that was consistently missing from study reports was an assessment of treatment fidelity, a useful aspect for interpreting particularly conspicuous findings and to aid in broadening generalizability. Although some studies report dosage of the intervention and contamination of the control group (Tamminga et al., 2013), discussion of whether the intervention was implemented as intended was lacking. Overall, the internal and external validity of the included studies were limited.

The number of included studies was small given the inclusion criteria, producing a much larger pool of studies that were excluded. Moreover, the wide range of the types of interventions that were included most likely decreases the precision of the results of this review. Lastly, the studies included demonstrated a narrow age range, in particular, older age participants. People who have cancer tend to be older since cancer diagnoses are more common as people age. Nine of the 10 studies that reported participant age had individuals of an average age of over 50 years. The field would benefit from additional research on these particular interventions and younger participants. With findings from studies of more targeted interventions with younger workers, recommendations for the effectiveness of these programs could be put forth that were both more specific about what to do, and more informative about what practices are—or are not—effective in various settings and populations. ■■■■■■■■■■

## Next Steps for the KTER Center’s Research Trajectory

The KTER Center’s research follows a set trajectory. Step one was to conduct a systematic review on a topic of relevance to disability and employment. Step two was to collect data from KTER’s target audiences about what kinds of factors acted as barriers or facilitators to the uptake of evidence into practice. That phase is also concluded. It involved, among other activities, conducting focus groups with members of the business community. Participants reported that if they were going to use any research findings, those findings would need to be relevant to an existing business need or legal mandate. People in business also use online resources quite a bit. And—while it’s not always easy for researchers to acknowledge this fact—not everyone wants to hear about research from researchers. So, taking those three findings together, the KTER Center recruited a trainer from the Equal Employment Opportunity Commission (EEOC), Mr. Joe Bontke, to deliver information about cancer and employment. That content included the findings from the systematic review but in a broader context of the Americans with Disabilities Act and other information about laws and resources for employees with cancer. The delivery mechanism was a webcast we have recorded (see <http://www.kter.org/ktactivities/webcast159>). ■■■■■■■■■■

The third phase of KTER's research is testing the impact of this training, a very common knowledge translation strategy. Supervisors, staff of human resource departments and VR professionals are encouraged to register for the hour-long webcast. Those who participate in the study associated with the webcast can get one hour of HRCI credit and 1 clock hour CRC-CEU.

SEDL is involved in other work related to cancer and employment that is beyond the scope of this Technical Brief. It involves partners at the Southwest ADA Center and other entities. KTER also has research activities related to testing knowledge translation strategies about other topics and with other audiences. If you have questions about our greater portfolio of research, contact KTER's research director, Kathleen Murphy: Kathleen.Murphy@sedl.org or Principal Investigator, John Westbrook: John.Westbrook@sedl.org

## References

- Americans with Disabilities Act of 1990, Pub. L. No. 101-336, 104 Stat. 328 (1990). Retrieved from <http://www.ada.gov/pubs/adastatute08.htm>
- ADA Amendments Act of 2008, PL 110-325 (S 3406) September 25, 2008. Retrieved from <http://www.eeoc.gov/laws/statutes/adaaa.cfm>
- Amir, Z. & Brocky, J. (2009). Cancer survivorship and employment: epidemiology. *Occupational Medicine*, 59(6), 373-377. doi:10.1093/occmed/kqp086
- de Boer, A. G., Taskila, T. K., Tamminga, S. J., Frings-Dresen, M. H., Feuerstein, M., & Verbeek, J. H. (2011). Interventions to enhance return-to-work for cancer patients. *Cochrane Database of Systematic Reviews*, (2), CD007569. doi: 10.1002/14651858.CD007569.pub2
- Elsby, M. W. L., Hobijn, B., & Sahin, A. (2010). The labor market in the great recession. *Brookings Papers on Economic Activity*, 2(1), 1-69. Retrieved from [http://www.brookings.edu/~media/projects/bpea/spring\\_2010/2010a\\_bpea\\_elsby.pdf](http://www.brookings.edu/~media/projects/bpea/spring_2010/2010a_bpea_elsby.pdf)
- Tamminga, S. J., Verbeek, J. H., Bos, M. M., Fongs, G., Kitzen, J. J., Plaisier, P. W., Frings-Dresen, M. H., & de Boer, A. G. (2013). Effectiveness of a hospital-based work support intervention for female cancer patients: A multi-centre randomised controlled trial. *PLoS One*, 8(5), e63271. doi: 10.1371/journal.pone.0063271
- U.S. Cancer Statistics Working Group. (2014). Table. 5-Year Relative Survival by Selected Primary Site, Race, Sex, and Age Group — National Program of Cancer Registries, United States. In: 1999-2011 Incidence and Mortality Web-based Report. Retrieved from [http://apps.nccd.cdc.gov/uscs/Survival/Relative\\_Survival\\_Tables.pdf](http://apps.nccd.cdc.gov/uscs/Survival/Relative_Survival_Tables.pdf)
- Villaverde, R. M., Battle J. F., Yllan, A. V., Yllan, A. V., Gordo, A. Y. Y., Sanchez, A. R., Valiente, B. S. J., & Baron, M. G. (2008). Employment in a cohort of breast cancer patients. *Occupational Medicine*, 58(7), 509-511. doi:10.1093/occmed/kqn092

## VIEW THE WEBCAST:

The information in this Technical Brief was presented in:

### “Interventions that Work: Employment of Cancer Survivors”

This webcast was sponsored by the KTER Center, the Center on KTDRR, and the Campbell Collaboration (first aired via YouTube on January 20, 2015).

For more information, see:

<http://www.kter.org/ktactivities/webcasts/164>

You may also download the podcast of the webcast.



**About the KTER Center:** The Center on Knowledge Translation for Employment Research (KTER Center) aims to identify the best available evidence related to the employment of Americans with disabilities and investigate why and how individuals use (or do not use) research evidence. The KTER Center contributes to a better understanding of how research evidence can most effectively be translated into new or improved policies, employment opportunities, and support systems. [Learn more about the KTER Center: www.kter.org](http://www.kter.org)

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