

A Model Framework for Integrating Genomics into Public Health Programs

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Background and objectives: Oregon is one of four states funded by the Centers for Disease Control and Prevention (CDC), National Office of Public Health Genomics to integrate genomics into state public health programs. The Oregon Genetics Program developed a model framework for integrating genomics into Public Health Programs adapted from the Transtheoretical Model (TTM) of individual behavior change.

Methods: An iterative strategy was used to adapt the TTM to our purposes. Definitions for each stage of change and indicators for each stage were developed. The model was retrospectively piloted by comparing the knowledge level of staff in seven Oregon chronic disease program with the evaluation results of previously completed genomics integration activities.

The “stages of change” definitions and indicators were then refined, the “process of change” definitions adapted, and a table matching the adapted stages of change and adapted processes of change was created. The concept of “decisional balance” was included to the model.

A prospective pilot of nine Oregon Office of Family Health (OFH) programs is currently in process. Each program was staged. Candidate activities to promote genomics integration for the nine programs were brainstormed and each activity was matched with the appropriate process of change. Stage-matched activities will begin this spring.

Results:

Retrospective model pilot

Seven chronic disease programs were retrospectively staged: two in precontemplation, three in contemplation, and two in preparation. Activities promoting initiation of a genomics activity were most successful in chronic disease programs whose staff had a preexisting knowledge of genomics. For chronic disease programs whose staff had a low knowledge of genomics, these same activities were less successful, while awareness-building activities were well received.

Prospective model pilot

Of the staged OFH programs, four were staged in precontemplation, five in contemplation, one in preparation, and none in action or maintenance. Candidate genomics integration activities were each determined to be stage matched or not staged matched. A list of stage-matched activities was drafted.

Discussion/Conclusion: The most significant difference between our model and previous adaptations of the TTM to organization change is that in our model, all measures and interventions target the organization as a whole, rather than individuals within an organization. This approach is much less expensive and time-consuming than previous adaptations of the model, which require staging and stage-matched interventions for individuals in the organization.

For programs that have not previously considered using genomic strategies (precontemplation stage), promoting a basic understanding of genomics is a more effective strategy than attempting to engage the program immediately in a genomics activity. If a program has already decided to pursue a genomics activity (preparation stage), efforts can focus on assisting with this activity, rather than raising awareness.