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The pathways of high school science teachers and policy efforts to alter the pipeline

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There is currently much interest in improving the quality of science education in K-12 schools and encouraging more students, particularly minorities and women, to pursue careers in STEM fields. Two interrelated issues are at the forefront: the quality of science teachers and the supply of science teachers. Education research in general finds that the single most important school-based factor affecting student achievement is teacher quality. While there is little evidence that teacher credentials matter for student achievement in the lower grades, there is at least some evidence that content knowledge is an important determinant of teacher quality in middle and secondary schools. However, little is known about the pre-service preparation of high school science teachers and how the training of science teachers affects their performance in the classroom. While there are many efforts underway to increase the supply of science teachers, little is known about the supply of science teachers from different pathways and the factors that lead science teachers to leave the profession. In this presentation I discuss recent work on the supply of teachers from alternative pathways, focusing on high school science teachers. I also summarize the literature on teacher quality and attrition, emphasizing the current state of knowledge on secondary school teachers. Finally, I present current policy initiatives and discuss the likelihood of their success given current research findings.