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COMMENTARY

# The earnings of people with diabetes: a signal of poor health or a sign of better things to come?

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The diagnosis of type 1 diabetes often brings with it an array of activities between the medical professional and the patient—stabilisation of blood glucose, education about insulin administration, blood glucose monitoring and diet—with an emphasis on establishing daily practices for maintaining health. In many situations, the short- and long-term health consequences of diabetes are discussed and placed in context. The social consequences of type 1 diabetes are discussed far less often.

The paper by Steen Carlsson and colleagues [1] outlines the impact of a diagnosis of type 1 diabetes on earnings and provides more evidence to fuel future discussions and debates. The key finding of this report was the observation that, prior to diagnosis, the earnings of people who would later be diagnosed with diabetes were similar to the earnings of similar persons (with regard to age, sex, residence and parental education) without future diabetes. However, after diagnosis, this pattern of earnings changed: individuals with type 1 diabetes experienced lower earnings over time than those without diabetes. Earnings were particularly reduced after 10 years duration of type 1 diabetes. For research professionals in the field, this is a key finding. It highlights, longitudinally, what many have long suspected. For people with type 1 diabetes and those treating them, this finding is a stark reminder of how type 1 diabetes often affects the lives of those with the disease.

What underlies this earnings differential? Steen Carlsson and colleagues examined the role of traditional influences on earnings, such as education, parental education and regional economic vitality. None were notable, leaving the strong likelihood that the difference was diabetes-related. A previous report [2] has indicated that diabetes can indeed be detrimental to employment patterns, and the suspicion is that one or more of these patterns explains the finding. Notable employment issues related to type 1 diabetes in the literature include reduced participation in the labour force (i.e. fewer in the workforce, fewer working full-time), employment restriction (i.e. bans on certain occupations), employment discrimination, increased disability, increased absenteeism and increased presenteeism (i.e. reduced productivity).

While the exact cause-and-effect relationship between diabetes and employment remains to be confirmed in longitudinal designs, very strong indications about the negative consequences of diabetes are emerging from cross-sectional and case–control studies. The first indication is the link between the long-term complications of diabetes and adverse employment experiences. Current evidence points to clinically significant complications (such as blindness, myocardial infarction and renal disease) as the primary indicator for increased work disability and absenteeism, which in turn leads to lower rates of participation in the labour force [2]. These reports hint that people with diabetes without complications have employment experiences similar to those of the general population. This is a potentially powerful signal, as it highlights the role that clinical strategies can play in enhancing the social and economic experiences of people with type 1 diabetes. As a politician might say, ‘Good blood glucose control saves jobs!’

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One finding of Steen Carlsson and colleagues may indirectly reinforce this perspective on diabetes and employment. They illustrate, quite dramatically, that the earnings differential between people with diabetes and matched controls increases markedly after 10 years of diabetes duration. As complications arise mainly after 10 years duration, the correlation appears intriguing. It would be presumptuous, though, to assume that this correlation exists automatically. Evidence to support or refute it is not available in the report by Steen Carlsson et al., as it lacks detail on the short- and long-term health status of the research participants.

The second distressing indication regarding diabetes and employment involves the perspective and perception of employers. For many years, those with insulin-treated diabetes have received unique attention from employers: this attention has largely been negative. Early occupational studies noted higher rates of absenteeism, accidents and disabilities in employees with diabetes [3]. Current reports note higher economic costs to employers related to their employees with diabetes [4]. Over time, this has led to both explicit disqualification from employment (in specific occupations) and implicit discrimination in employment settings for people with insulin-treated diabetes. Both disqualification and discrimination carry social consequences that can also affect the earnings of those with type 1 diabetes. However, the extent to which they affect earnings is not yet known.

There is some room for optimism, though, in this domain. Most employment rules and viewpoints were established before the explosion in diabetes technologies and treatment strategies. These technologies, which include meters, pumps, insulin analogues and strategies focusing on tight blood glucose control, offer new opportunities for reducing occupational risks. However, we need systematic research that links these issues to enhanced safety and employability. Further, implicit discrimination has recently drawn the attention of governments. Legislation such as the Disability Discrimination Act in the UK and the Americans with Disabilities Act in the USA has set a new positive tone to how society views, or should view, those with real or perceived limitations.

Two other employment issues that may affect earnings—the effect of diabetes on unemployment and occupational attainment—are not yet agreed upon in the literature. There are conflicting reports regarding the link between diabetes and unemployment (among those in the labour force). As unemployment is influenced by local, regional and national socioeconomic factors, it remains difficult to identify the full role of diabetes in employment outcome. Indeed, one caution to take from Steen Carlsson et al. is that their data reflects the experience of only one economic/geographical area. While the earnings differential reported is likely to be robust, it may differ according to context in other economies or in areas with differing social institutions.

Occupational attainment raises the question of whether people with type 1 diabetes achieve jobs comparable to those without diabetes. Aside from job disqualification and discrimination, does diabetes change career aspirations, pursuits and achievements? Certainly, there is anecdotal evidence of its effect on aspiration, for example young people deciding to choose a career in the healthcare professions because of the influence of their own physician, nurse educator or dietitian. The higher rate of unemployment and lower earnings of women with type 1 diabetes reported by Steen Carlsson et al. suggest that diabetes could adversely affect the decisions made by women on whether to work or to work on a full-time basis. On a large scale, though, there are few answers to these occupational questions and deciphering them will be a challenge. Decisions on employment will vary based upon individual circumstances, such as the level of support from the immediate family, the potential for flexibility from employers and even the age at diabetes diagnosis.

Discussion of the social consequences of type 1 diabetes should be embraced more frequently in clinical settings. While diabetes can carry meaningful employment burdens, there also are opportunities now that did not exist in the past. Just as there is renewed enthusiasm for the long-term health of individuals after the diagnosis of diabetes, there is hope regarding the potential for full and productive employment.

## References

1. Steen Carlsson K, Landin-Olsson M, Nyström L et al (2010) Long-term detrimental consequences of the onset of type 1 diabetes on annual earnings—evidence from annual registry data in 1990–2005. Diabetologia. doi:10.1007/s00125-009-1625-z
2. Milton B, Holland P, Whitehead M (2006) The social and economic consequences of childhood-onset type 1 diabetes mellitus across the lifecourse: a systematic review. Diabet Med 23:821–829
3. Songer TJ, LaPorte RE, Dorman JS, Orchard TJ, Becker DJ, Drash AL (1989) The employment spectrum of insulin-dependent diabetes. Diabetes Care 12:615–622
4. Ramsey S, Summers KH, Leong SA, Birnbaum HG, Kemner JE, Greenberg P (2002) Productivity and medical costs of diabetes in a large employer population. Diabetes Care 25:23–29