Complex diabetes screening guidelines for high-risk adolescent Aboriginal Australians: a barrier to implementation in primary health care

Why was this study done?

- Type 2 diabetes (T2D) is a major health issue in the Kimberley. Patients usually do not know they have diabetes and therefore it is important to screen for it.
- Young-onset diabetes (diabetes that develops under age 25) is particularly aggressive and leads to kidney, feet, eye and heart complications much quicker than adult-onset diabetes.
- The T2D guideline for adults in the Kimberley was changed in 2015 to recommend use of HbA_{1c} capillary point of care (POC) and venous tests to screen for diabetes instead of venous blood glucose tests. This was done after a local study found it was a better way of diagnosing T2D in remote areas.
- The current T2D guideline for adolescents (aged 10-14) still recommends using laboratory blood glucose samples. This makes testing for diabetes difficult as patients have to be fasted for the test.
- We wanted to find out if using HbA_{1c} tests in 10-14 year olds, using either POC or venous tests, would increase diabetes screening in that age group. We also wanted to find out what sorts of things encouraged or prevented staff from screening.

How was this study done?

- A screening algorithm for 10-14 year olds incorporating HbA_{1c} tests was developed based on Australian and international best practice and in consultation with local and regional health practitioners. The algorithm allowed for screening via an HbA_{1c} or a blood glucose pathway, and stipulated that only high risk adolescents should receive venous testing.
- The algorithm was piloted for 6 months (27 June 2016 – 26 December 2016) at two participating primary health care (PHC) services: an Aboriginal Community Controlled Health Service (ACCHS); and the General Practice (GP) and Emergency Department (ED) at a hospital in the same town. Remote clinics covered by these sites were also included.
- Using electronic medical record data from the PHC services, we compared the number of people screened during the pilot with an earlier 6 month period (1 October 2015 – 31 March 2016).
- Interviews were held from October to December 2016 with staff from the participating PHC services, to assess their knowledge and satisfaction with the algorithm, and to identify barriers and enablers to implementing it.

What did we find?

Screening increased significantly at the ACCHS

- Screening via capillary and venous blood tests increased significantly at the ACCHS (36% during the pilot v 22% before the pilot).
- Seven patients received initial or follow-up venous blood tests during the pilot, compared to none before the pilot. All venous tests conducted were HbA_{1c} tests.
- Screening was most commonly initiated by a nurse, child health nurse or Aboriginal Health Worker (AHW) for routine observations. Other reasons included for Aboriginal health checks (eg Medicare Benefits Schedule item 715), or because the patient had particular risk factors for diabetes.

Screening did not change at the hospital

- There was no difference in screening during the pilot compared to before the pilot (0.02% v 0.02%). More patients were screened in the General Practice compared to ED presentations (6 of 29 GP patients screened v 5 of 435 ED patients screened).
- Doctors initiated all screening tests.
- It is likely more screening occurred at the hospital than we identified from the electronic health records, as uncomplicated presentations to ED were commonly only recorded in paper files.

Barriers to using the algorithm

- Apprehension about T2D screening in young adolescents was a significant barrier to screening, with health practitioners often reluctant to follow recommendations outlined in the algorithm. This was evident in a number of staff reporting that they did not want to perform POC or venous tests due to their concern that they may cause unnecessary pain to patients. Similarly, only a small proportion of patients received follow-up venous testing despite being identified as high risk.
- Certain characteristics of the hospital's General Practice may have contributed to the hospital's comparatively lower rates of screening. These included: patients not having routine observations taken by a nurse or AHW prior to their consult with a doctor; shorter appointment times; the General Practice being staffed by a rotating roster; and a high reliance on locum staff.

What does this mean?

The results from this study gives us ideas on what sorts of things could improve diabetes screening in 10-14 year olds. These include:

- Clear guidelines that include HbA_{1c} testing;
- Targeted screening programs which focus on patients that have a high risk of having diabetes;
- Educating staff, patients and their families about the importance of diabetes screening in 10-14 year olds, and about the evidence supporting our approach to screening;
- Organisational practices which support screening, including AHWs performing an initial assessment of a patient before they see a doctor; and
- Use of POC HbA_{1c} tests, which could prevent the need to take a venous HbA_{1c} test. We know from a previous study that this improves diabetes screening in adults.

Where to from here?

We will take the findings from this study into account as we update the guideline for diabetes screening in 10-14 year olds.

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