

Report on the National Diabetes Audit (NDA) Quality Improvement Collaboratives

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Strengthening the quality improvement skills of audit recipients may increase improvement from national audit (Brown et al, 2019). The National Diabetes Audit Quality Improvement programme (2017-2020) aimed to help services to improve care and outcomes for people with diabetes across four of the national audit workstreams:

- Inpatient care - National Diabetes Inpatient Audit (NaDIA)
- Pregnancy and pre-conception care - National Pregnancy in Diabetes Audit (NPID)
- Foot care - National Diabetes Foot Care Audit (NDFA)
- Transition from young persons to adult diabetes services – National Diabetes Transition Audit (NDTA – a joint NPDA/NDA enterprise)

This work was undertaken through creating Quality Improvement Collaboratives (QICs).

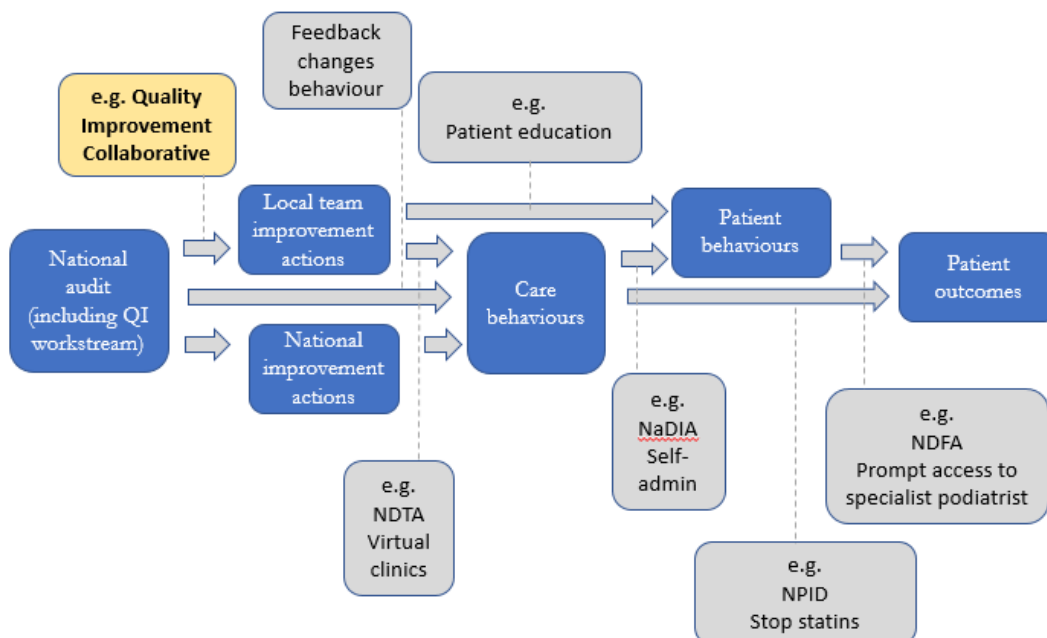


Figure 1: How different interventions influence patient outcomes

As illustrated in Figure 1, the QICs seek to support the work of local teams to influence care and patient behaviours in order to improve patient outcomes. QICs can support healthcare improvement (Schouten et al, 2008). The QICs sought to support NDA participants to:

- Engage stakeholders
- Set aims
- Select priorities
- Identify and align actions
- Monitor impact

Appendix 1 provides a map of participating QIC sites across all four audit workstreams.

We provided workshops at the beginning and end (Appendix 2) plus intermediate multi-site teleconference calls.

This report describes the high-level aims for each collaborative, how the national and local teams sought to achieve these aims and the lessons learnt from across the four collaboratives.

The high-level aims:



National Pregnancy in Diabetes audit

Since it was established in 2013, the National Pregnancy in Diabetes (NPID) audit has evidenced statically poor outcomes for women with type 1 or type 2 diabetes who become pregnant. This is a high risk area for both the women and their infants. Consultation with health care professionals and people with diabetes clearly identified that the focus for the audit Quality Improvement Collaborative (QIC) should be on improving preparation for pregnancy. Although challenging because of its multi-agency nature, this was thought, based on longstanding clinical evidence and more recent NPID analyses, to have the greatest potential to benefit to mothers and infants. The teams developed aims relating to increasing the proportion of women who were well prepared for pregnancy, specifically:

- Use of 5mg folic acid supplements
- Keeping HbA1c below 48 mmol/mol where safely achievable
- Stopping/substituting oral glucose-lowering medications apart from metformin
- Stopping statins and ACE inhibitors/ARBs



National Diabetes in Foot Care Audit

Since it was established in 2014, the NDFA has consistently found that having a severe ulcer is strongly linked with worse outcomes for people with diabetes. This includes lower rates of healing, higher rates of major amputations and higher risk of death. NICE guidance, supported by NDFA analyses, suggest that people with diabetes who have a foot ulcer are seen by a specialist service quickly. Rapid assessment leads to better outcomes.

Consultation with health care professionals, people with diabetes and policy makers clearly identified that the QI focus should be on reducing wound severity at, specialist assessment and the time to accessing specialist assessment. Specifically, the QI projects sought to improve:

- a) Patients' prompt access to a healthcare provider upon developing a wound
- b) Prompt primary care referral for specialist assessment
- c) Availability of specialist assessment appointments



National Diabetes Inpatient Audit

Since it was established in 2010, the National Diabetes Inpatient Audit has uncovered high levels of diabetes medication errors and diabetes management errors which may cause dangerously low or high blood glucose levels. Consultation with health care professionals and people with diabetes clearly identified that the focus for the National Diabetes Inpatient Audit Quality Improvement Collaborative (NaDIA QIC) should be on reducing rates of inpatient onset severe hypoglycaemia and diabetic ketoacidosis (DKA) / hyperglycaemic hyperosmolar syndrome (HSS) in hospitals. The NaDIA QIC aimed to help services to reduce inpatient hypoglycaemia and DKA/HHS.

Specifically, NaDIA QIC focused on reducing:

- medication errors on wards
- insulin errors on wards
- hypoglycaemia due to the timing/choice of meals



National Diabetes Transition Audit

The National Diabetes Transition Audit 2011-17 demonstrated that the percentage of young people achieving a target HbA1C of 58 mmol/mol or less fell after transition to adult care. This overall picture hides substantial variation across different geographic localities in England and Wales. Furthermore, changes in HbA1c were not influenced by gender, ethnicity, or living in a deprived area. The National Diabetes Transition Audit (NDTA) team was keen to support improvements in the rates of transition from child to adult diabetes services without HbA1c detriment.

Our consultation identified that improvement activity should focus on glucose control, as measured by HbA1c, during the transition between services.

How the national and local teams sought to achieve these aims

For each QIC, NHS Digital and Diabetes UK put out a national invitation for services in England and Wales to apply join the collaboratives. Each applying team was asked to set local improvement aims related to the above aspects of care. Each service was also asked to identify a multidisciplinary team relevant to their local improvement aim(s) including, for example, a consultant diabetologist, a senior nurse, pharmacist, dietician, a GP, a commissioner and/or a quality improvement professional. Teams were asked to provide evidence of senior support within their organisation, for example from their Trust Chief Executive or lead commissioner.

Each round of QIC applications was over-subscribed (maximum capacity of 20 teams per QIC), such that we had 132 applications for 80 places. Selection was based upon diverse team membership, demonstrable senior support and geographical spread.

The QICs sought to support the multidisciplinary teams to:

Engage stakeholders

We sought and gained multi-disciplinary input into the core teams that attended the workshop. The case studies below illustrate that the core teams were successful in engaging wider stakeholders in ways that were pivotal to their projects. For example:

- The Manchester University NHS Foundation Trust NPID QIC team engaged commissioners in their work to improve preconception care, and were able to agree a financial incentive for practices meeting the primary care standard.
- The Colchester General Hospital NaDIA QIC team engaged with hospital pharmacists around the common goal of improving prescription and administration of insulin. As a result, they gained important support that they identified as a key driver of improvement.
- The Norfolk and Waveney NDFA team engaged diverse stakeholders including non-registered practitioners. They also held focus groups with primary care staff to identify reasons for late referral to acute foot clinics, information that then informed their improvement interventions.
- The Leeds Teaching Hospitals NDTA team used patient feedback to target improvements.

Set aims

The teams were required to set measurable aims for their improvement work. These were expressed so as to describe what would be changed by how much and by when.

Select priorities and monitor impact

The use of data was a core component of the QI projects. We facilitated teams to review their data and use it to identify their priorities for change.

In terms of self-monitoring of impact by the local teams, the NPID QIC, teams were able to extract NDA data to monitor improvement. For the other collaboratives, teams set up local monitoring processes to track improvement over time. Some teams focussed their time on interventions rather than monitoring. Consideration of how to support teams to create efficient rapid feedback mechanisms that enable them continuously to monitor the impact of their changes could be beneficial to future QICs. For the NDTA collaborative, tracking improvement over a short period was unfeasible because the target was to improve HbA1c after transition i.e. in the 12-24mo following the transition process. Key learning from this collaborative was the importance of monitoring individual HbA1c rates, rather than populations.

Identify and align actions

Across the teams, a wide range of improvement actions were undertaken, including:

- accessing new funding,
- altering incentive structures,
- educational meetings and materials,
- outreach education,
- use of social media,
- use of peer workers,
- new audit and feedback interventions,
- use of new technology and redesigning process and roles.

Interventions	Examples
Educational approaches for healthcare workers	Development of accredited education modules Offering mix of face to face and e-learning Applying to other bodies for funding for education e.g. HEE Taking every opportunity to education others
Educational approaches for people with diabetes	Development of patient information material Modifying existing education courses e.g. DESMOND Information events and peer led support
Improved use of IT/clinical systems	Development of templates and electronic alerts Setting up databases for use with multidisciplinary teams Increased use of electronic prescribing
Collaborative working/engaging with others	Improved links with primary care, third sector and other relevant teams Shadowing or sharing staff with other parts of the service
Increased/improved use or distribution of technology	Continuous glucose monitoring for pregnant women with type 1 Remote/virtual consultations Roll out of wireless blood glucose monitors
Building capacity within teams	Business cases to employ staff Reconfiguring clinics to offer more appointments Increase in self-referral/drop in clinics Training for admin to take on increased responsibilities e.g. following up non-attenders
Development of systems/processes/guidelines	Development of referral and treatment pathways Increased frequency of multidisciplinary teams

Table 1: Frequently used improvement actions

Before choosing actions, teams were given short, focussed training in: the model for improvement (including plan-do-study-act); process mapping (Treble et al, 2010); and a model of behaviour change (COM-B; Michie et al, 2011). This was supplemented during the QICs by information about interventions both described in literature (e.g. Figure 2) and undertaken by their peers (as described in teleconferences).



Figure 2: A sample of the documents referenced in the NDTA QIC

Process mapping (e.g. of food and medication provision in NaDIA QIC) and root cause analysis (e.g. to understand influences upon pregnancy preparation; Derby and Burton NHS Foundation Trust, NPID QIC) were used. However, it is possible that further guidance on how to analyse influences upon performance and select actions aligned to influences may have improved the targeting of improvement interventions.

Some interventions were tested (e.g. training one practice before rolling out through a protected learning time event), however many interventions were developed and implemented at the system-level without prior testing (e.g. financial incentive, self-administration of insulin policy, large training events). Future improvement workstreams may benefit from further input to support system-level changes, including the use of prior small-scale pilot testing.

Almost all teams produced a driver diagram describing the alignment of different improvement actions to their aim(s). Participants described driver diagrams as a valuable tool to engage with stakeholders, to align workstreams and to summarise the project to other members of the collaborative.

There was also some evidence that moving from pilot to system-wide roll-out may benefit from support. There was much evidence of peer learning among the QIC teams with initiatives being shared and then informing local plans. Sharing took place through the teleconferences, via email and at the end of programme workshop. Further work to spread the activity across non-participating sites included presentation at national conferences. We will look for additional dissemination opportunities during 2020-22.

How did we do?

It has not been possible yet to undertake an independent evaluation of the impact of the NDA QICs due to resource constraints and insufficient time from implementation to possibility of being able to measure system wide change. Instead, what we present here is feedback from the clinical leads, key lessons collated from the participating teams' feedback to peers and selected case studies. Further case studies are presented in the reports for each individual collaborative, available here:

<https://www.diabetes.org.uk/professionals/resources/national-diabetes-audit/quality-improvement-collaboratives>

A feasibility study is being planned to assess the fidelity, appropriateness, acceptability and adoption of improvement techniques by teams within the planned 2020-22 collaboratives. This feasibility study is intended as preparation for a potential formal evaluation of subsequent improvement activity.

Selected case studies are presented below. Professor Helen Murphy (NPID Clinical Lead) stated that, *"The case studies demonstrate how motivated individuals and teams can make a real difference to NHS service provision and patient outcomes"*. Professor William Jeffcoate (NDA Clinical Lead) added that, *"The field of diabetic foot ulcers has always been a neglected one – despite its very considerable importance in terms of suffering and cost. It is also a very difficult field in which to improve the quality of overall care because this relies on the effective integration of multiple professional groups. It is primarily for such reasons that this QIC programme is so relevant and the main themes that emerge from the reports from individual centres are so valuable. It is interesting that different centres chose different targets in making the necessary changes to the structure of care but it is so encouraging to learn how much effort has been made in relation to professional education and of the obvious appreciation of all those involved. But despite some new barriers also being identified, it is clear that this work has resulted in considerable improvements in outcome in some centres – even within the short space of 12 months – with a general trend to earlier referral of new cases, improved documentation of performance and reducing incidence of major amputation. One centre has also been able to report what is arguably the most important result of all: that of decreasing ulcer onset in a population at risk. It is very much to be hoped that the experience and enthusiasm gained in this project can now be used to stimulate continuing improvement throughout England and Wales."*

Teams were asked for the key lessons they would pass on to others seeking similar improvements. There were a number of consistent themes:

1. Relationships with others are crucial

- Find out what stakeholders need, consider how the work addresses their priorities, be strategic and focused
- Build on existing multi-disciplinary teams, and develop new ones where necessary
- Engage quality improvement and patient safety teams in planned work
- Building a relationship with one key person can open the door to others
- Some teams are slow to respond but keep trying

2. Align the improvement work with priorities, for example, in relation to CCG / STP funding and Board level commitment.

- Find out about their priorities
- Appeal to hearts as well as minds - patient stories are often very effective

3. Think outside the box about who your stakeholders are

- Third sector organisations, local authorities, public health, teams you might not have considered e.g. sexual health
- IT and administrators are often key in making things a success
- Don't reinvent the wheel – use/modify what's already available

4. Simple interventions can be very effective

- It is possible to make significant improvements without any additional funding, however achievement of change is likely to be much slower
- There is an important role for staff education, but high turnover means education/training need repeating regularly. Finding ways to provide reminders and to enable staff to access information when they need it is also important (e.g. electronic reminders, lanyard cards).

5. Protected time for QI work is crucial, but hard to achieve

- QI work is often done in addition to the 'day job'
- Other priorities are always present, and a crisis can make the work slip down the priorities list.

6. Make sure to celebrate achievements and milestones

7. Be realistic about what is in your scope and what you can improve

Next steps

Over the next two years, we will undertake further work to support improvement from the National Diabetes Audit. This will include:

1. Working with clinical networks to:
 - a. disseminate learning from the 2017-2020 quality improvement work.
 - b. test ways to enhance their use of NDA data to support improvement.
2. Deliver an intervention to support healthcare workers to improve the care for people with type 1 diabetes.
3. Deliver an intervention to support healthcare workers to improve the care for people with type 2 diabetes.

This work will incorporate learning from the 2017-2020 NDA QICs. This includes supporting teams:

- to engage stakeholders, including people with diabetes, commissioners and organisational leaders, in the planning and delivery of their improvements
- to analyse influences upon performance and select actions aligned to influences.
- to undertake system-level changes
- to plan for wider roll-out

For further information on this work, contact: nda@diabetes.org.uk

Acknowledgements: We would like to thank all the teams who participated in the collaborative for their willingness to share their experience.

Case studies

NPID Case study 1: Manchester University NHS Foundation Trust

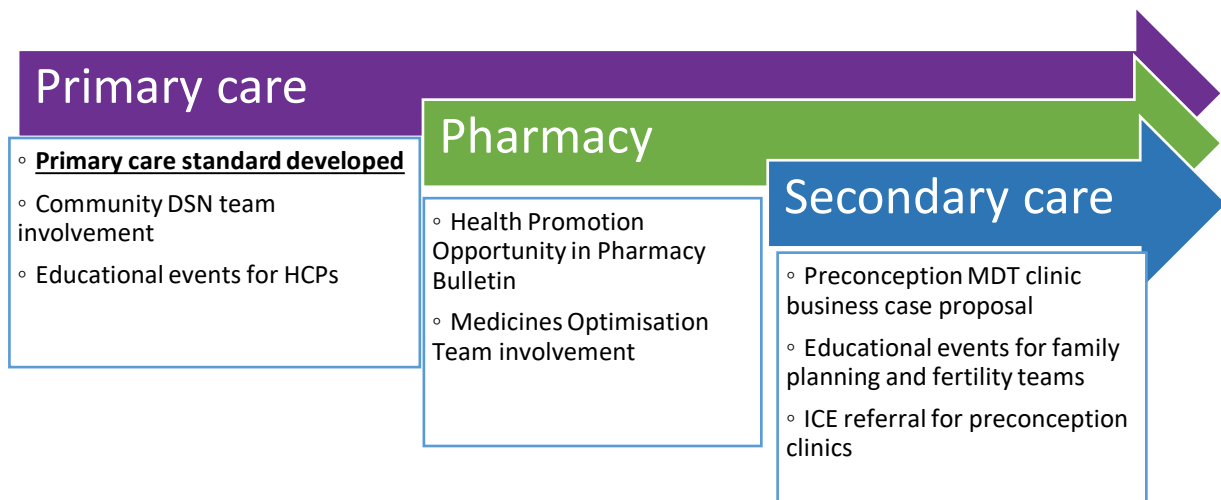
Aims:

- To raise awareness of the importance of safe, effective contraception and pregnancy planning in diabetes
- To provide all women across Greater Manchester with appropriate information and advice
- To raise awareness amongst health care practitioners of the importance of pregnancy planning in diabetes
- To ensure that women have access to specialist preconception care when required

Interventions tested:

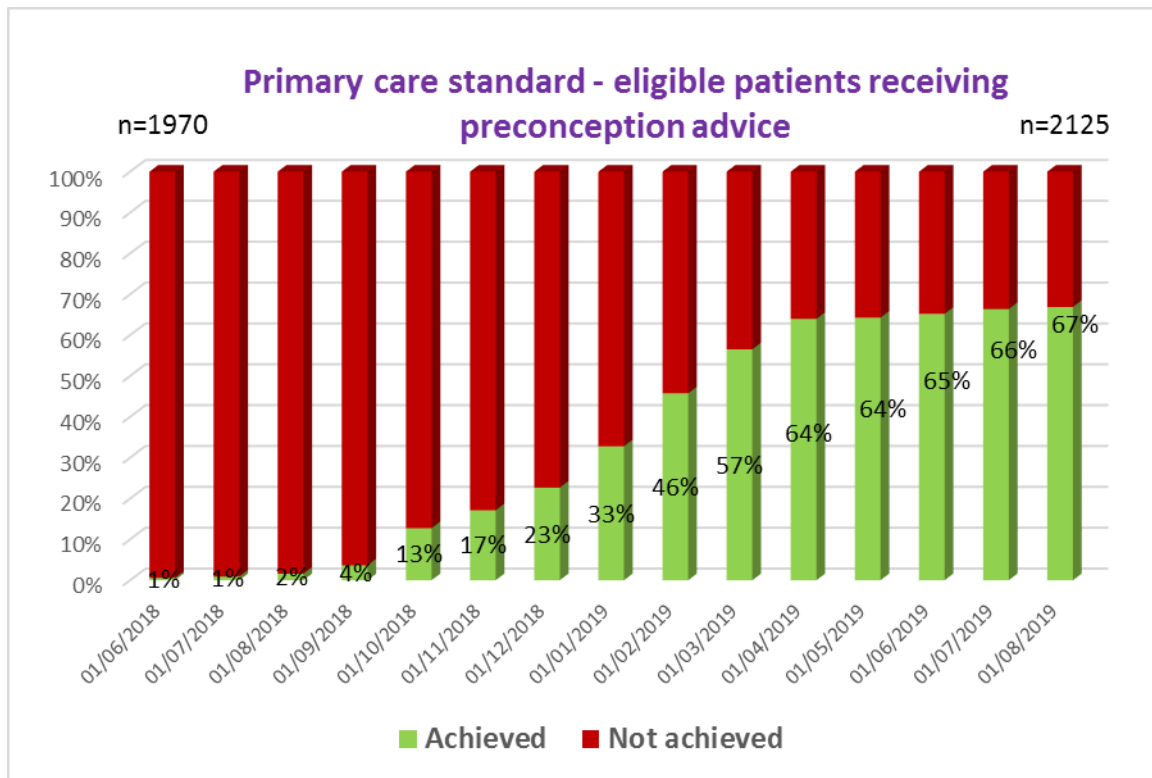
The effectiveness of the introduction of a Diabetes Preconception Primary Care Standard with financial remuneration, launched July 2018:

- EMIS alert to identify women of child-bearing age with diabetes
- Pathway for management of diabetes in the preconception period
- Use of Diabetes UK Information prescription embedded in EMIS
- HCPs in each practice to undertake CPD accredited e-learning module



Results:

- 100% of practices have enabled the Diabetes UK Information prescription on EMIS
- 60% of practices have achieved the HCP training standard (e-module completion)
- Practices reported increased confidence in giving preconception advice: from 7% to 73% over a 9-month period



Key lessons:

- Pathway development relies on good working relationships
- Align aims of project with current CCG priorities
- Stakeholder analyses are useful to identify target groups

Conclusions:

The team have successfully engaged with colleagues in primary care and the CCG to develop a primary care standard to enable brief preconception advice to be given by any health care practitioner in contact with women with diabetes.

Next steps:

- Target retinal screening attendees
- Produce multilingual information leaflets/posters

NPID Case study 2: Sheffield Teaching Hospitals NHS Foundation Trust

Aims:

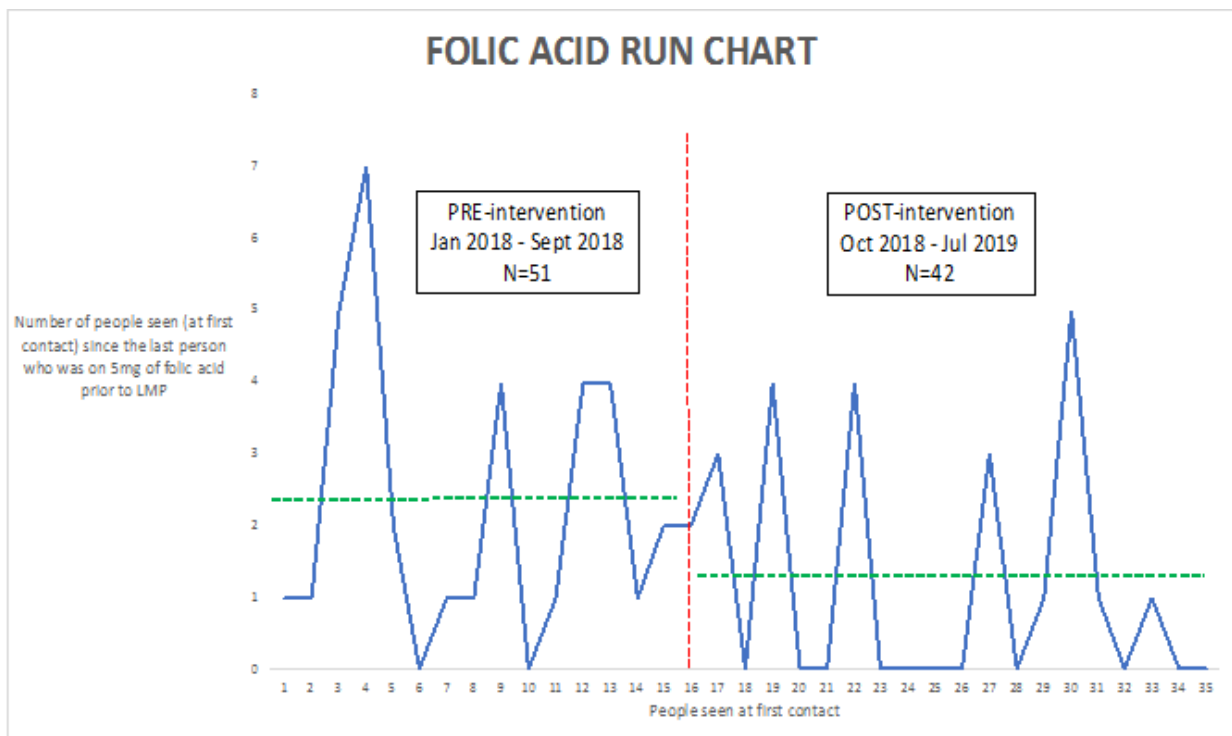
At booking:

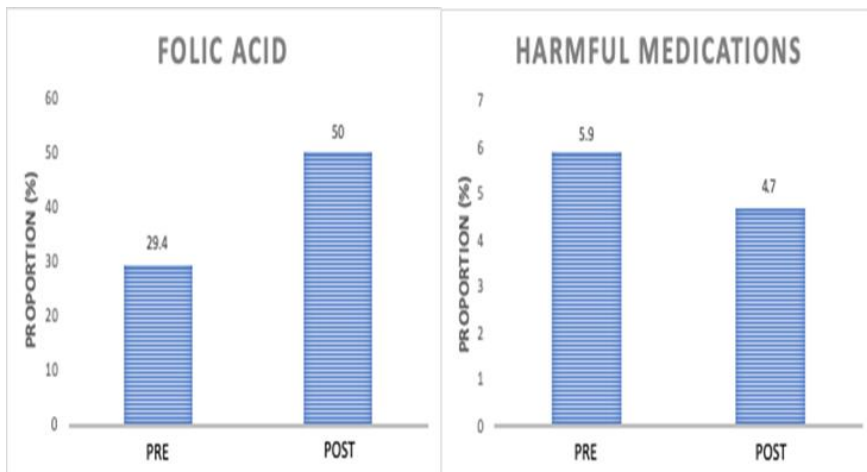
- 15% increase in the number of women on folic acid.
- None of the women taking harmful medications (statin/ACE-inhibitor/ARB).

Interventions tested:

- Pre-pregnancy leaflet and diabetes in pregnancy safety checklist uploaded into primary care diabetes template.
- SAFER posters distributed to all GP surgeries and community pharmacists.
- Regular 3-monthly reminders on pre-pregnancy care via primary care e-bulletin (GP, practice nurse, pharmacist).
- Pop-up message reminder in SystmOne on pre-pregnancy discussion for women with diabetes of child-bearing age.
- Meetings with practice nurses, health trainers and link workers in the community to raise awareness and upskill.

Results:





Key lessons:

- Engagement with key stakeholders (CCG Medicines Optimisation Team, Local Pharmaceutical Committee, GP Diabetes Lead, Primary Care Development Nurses and Sheffield City Council) is crucial to establish a multidisciplinary strategy.
- Interventions need to be strategic and focussed on different healthcare professional groups.
- Establishing a foundation to disseminate education and to raise awareness in primary care is important.
- Regular reminders are more effective than one-off education.
- Community-orientated approach is needed to reach out to women with type 2 diabetes of child-bearing age, an increasingly prevalent population.
- Unplanned pregnancy is a significant factor for suboptimal pre-pregnancy preparation.

Conclusions:

- The team increased folic acid uptake by 20% which exceeded our NPID QIC aim.
- The team reduced the use of harmful medications.
- This was achieved by raising awareness on good pre-pregnancy care in the community via effective channels of communication.
- Collaboration between primary and secondary care is essential to improve pre-pregnancy care city-wide.

Next steps:

- DESMOND module on pre-pregnancy for young women with type 2 diabetes.
- Community diabetes specialist nurses to deliver pre-pregnancy care and support GP/practice nurses.
- Reinforce pre-pregnancy awareness in primary care.
- Midwives to reinforce pre-pregnancy awareness for women with diabetes prior to discharge from antenatal ward.

NDFA Case study 1: South Warwickshire NHS Foundation Trust

Aims:

- To improve the quality of NDFA data capture within community podiatry by aspiring to input 100% patients on access plan onto the audit
- To reduce late referral/chronicity of active foot problems by observing reduction of the mean time of first presentation of wound to referral for specialist foot assessment :
 - 5 poorest by 50%
 - reduction 14 days SWCCG

Interventions tested:

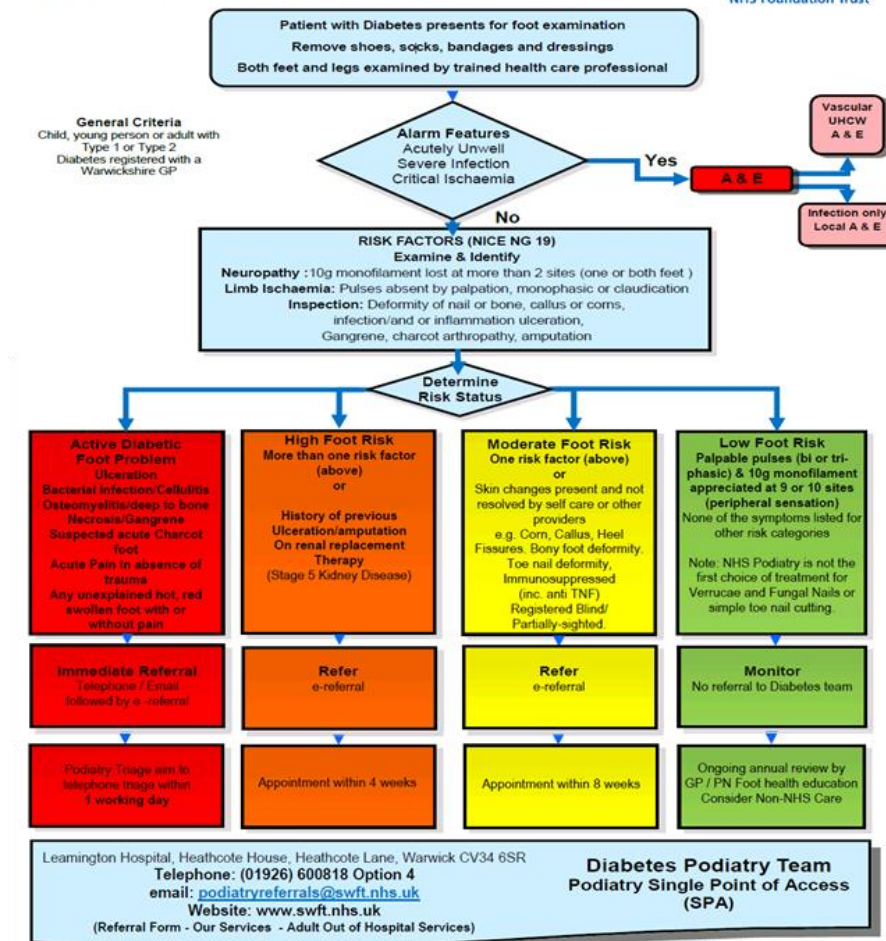
To improve the quality of NDFA data capture we:

- Designed and introduced electronic record on our wound evaluation form that collected data for NDFA
- Agreed with the information analyst :
 - Weekly email prompts for notes to be reviewed at 12 and 24 week data set
 - Quarterly quality data prompts
- Allocated podiatry staff resource
- Identified caseloads on wound management access plans
- At the beginning of project we performed a baseline 1st audit (Jan 2019) reviewing all patients with diabetes on a wound management access plan to establish if they had a completed open or closed current NDFA form for the index ulcer. Barriers to completion were identified.
- Departmental training shared audit results plus re-taught how to complete electronic NDFA
- 2nd Re-audit June 2019 data (delayed until Sept 2019 due to unprecedented staff sick leave).
- Feed back of results on team day by specialist podiatrist. Emails to all department and individuals who were identified required additional support.
- Staff suggested a prize for the best performing locality.
- 3rd Re-audit December 2019.
- Celebrated teams who had achieved best data input and best improved data.

To reduce late referral/chronicity of active foot problems we:

- Provided training to practice nurses and health care assistants (initially funded by MDFT transformational funding):
- 2 x year, full day, diabetes foot assessment and referral
- 2x year half day vascular assessment and wound management trainings with revision on Diabetes foot referral

Referral Pathway for Diabetic Feet



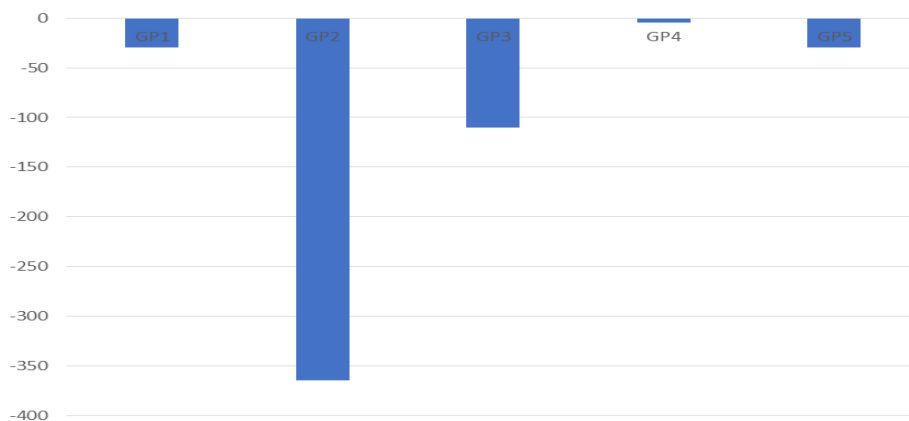
* Painful Neuropathy: Managed in general practice see NICE NG 173 and SIGN 116

May 2019
Sarah Hart Principal Lead Podiatrist Diabetes and Tissue Viability
Review date May 2020

Results:

- Overall we have improved our trust completion of NDFA from mean 72.75% 1st Audit (Jan 2019) to 90.2% in the 3rd Audit(Dec 2019). This is an improvement of 17.45%.
- All teams improved on the 3rd Audit: 2 out of 5 teams achieved 100% input.

Average Difference in Duration of Ulcer in days at Time of Referral
2018/19 v2019/20 YTD



- Our data for 5 GP Practices (SWCCG) with most delayed referrals showed a 62% reduction
- Our data demonstrated:
 - Whole county average improvement of 12.6 days (54 to 41.4)
 - A 3.3 day reduction (48.3 to 45) delay for SWCCG
 - All 3 CCG's were offered the same training, but those which were better performing have highest training attendance rate)

Key lessons:

- Teams can successfully capture 100% NDFA input within community podiatry when facilitated by an electronic record. To achieve and maintain this teams need:
 - funded/supportive access to IT developers and information analysts to facilitate development of electronic record and timely/effective data prompts and quality analysis at agreed intervals.
 - a leader(s) with enthusiasm/willingness to drive improvement who is able to delegate audit and review data to locality champions
 - an audit cycle in place which can monitor deterioration and/or improvement
 - opportunities to feedback, support and encourage the team/department.
 - small teams, that regularly meet, have a visible leader with regular team briefs and encourage staff will improve the fastest.
- Identify and address key barriers to completion of NDFA
 - Staff not previously involved in paper NDFA collation e.g. new starters, bank staff, staff that do not work on the Diabetes & TV team
 - Misunderstanding of what should be captured on NDFA
 - Lack of time
- Despite severe challenges to staffing resource (40-50% below wte) change and quality improvements can be made if there is drive and enthusiasm from key leaders however achievement of change/results is likely to be much slower.
- Projects that involve teams and IT may be harder to gain commitment without funding.
- Celebrate achievements and find ways to overcome barriers and share your teams learning.

Conclusions:

- Teams can successfully capture 100% NDFA input within community Podiatry when facilitated by an electronic record, information analysis, effective leadership and embedded audit.
- Delayed Active Diabetic Foot referrals to the multi-disciplinary footcare team (MDFT)/ podiatry can be reduced by providing Practice Nurse and Health Care Assistant Diabetic Foot risk assessment and referral pathway training.
 - The higher the percentage (and nearer to 100%) of nurse and HCA's that attend training the greater the reduction
 - When 100% of the GP practices have been trained this has the additional health economy benefit of improving timely referrals for patients without diabetes with active foot problems, which with what is known about the diabetic foot is likely to improve outcomes.
 - Training resource needs to be ongoing and focused on those that have not attended to further reduce CCG delay.
- Electronic Foot Risk Stratification success requires funded and agreed IT provision support and time until full achievement of it's goals. To facilitate projects shorter than 1-2 year

utilising electronic systems partners need to be on the same IT system; as a consequence IT projects require strategic long term buy in from senior management.

Next steps:

- To sustain and maintain high quality and quantity of NDFA capture within SWFT:
 - Delegate roles by introducing, in the North and South of County, 2 middle leaders “NDFA - Quality Improvement Champions” to maintain audit/analysis of capture who will feedback to team/department. They will be supported by leadership.
 - Retain 3-6 monthly audit until achieve compliance of 96% or above for 2 audit cycles then extend to 8 and then 12 month cycle.
 - When improvement is embedded reduce sample to 30 patients at each locality caseload.
 - Develop a supporting document for new starters “how to complete new NDFA” and “How to”- audit NDFA quality handbook” for our Champions
- Share learning with West Midlands Diabetes Foot Network to act as catalyst and challenge for other providers to improve their data capture.
- Identify human resource to identify barriers and support/encourage GP practices that have not attended Diabetic Foot risk assessment and referral training.
- Share data and findings of QIC with the new Health Care Partnership to agree priorities and identify way forward aspiring to 100% practice nurse attendance training. Identify barriers. To expedite this bid for additional short term financial resource as well as continuing to work with industry.
- Transformation MDFT review of electronic foot risk stratification sustainability and development of plan to move forward.

NDFA Case study 2: Norfolk and Waveney Diabetes Foot Care Partnership

Aims:

- 80% of patients presenting to a health care professional to be seen by a specialist diabetic footcare service within 14 days of first presentation.

Interventions tested:

- Formed an STP wide working group, including:
 - Representatives from all 3 providers of Podiatry services to Norfolk and Waveney STP
 - Diabetes specialist podiatrists
 - STP lead for diabetes
 - Commissioning manager for footcare in diabetes
- Regular meetings to:
 - Work towards aims / goals
 - Identify and eliminate barriers
 - Delegate workstreams
 - Agree funding applications

Workstream 1: Education for Private non-registered Foot Health Practitioners

- Identified that access to NHS preventative podiatry care in Norfolk / Waveney subject to criteria
- Patients with low podiatric need are not accepted
- Many patients choose to see private nonregistered practitioners, whose experience / knowledge of the diabetic foot may be poor
 - £6.5K HEE funding won to provide education sessions to this group to provide basic information regarding assessment , red flags, patient education and referral of the diabetic foot
 - 4 afternoon workshops in different locations
 - Over 90 attendees
 - Feedback excellent

Workstream 2: Education for care homes

- People with diabetes resident in care / nursing homes are often at a disadvantage with respect to accessing diabetes foot care
- Most do not receive an annual diabetic foot screening to identify risk factors as this is usually provided in surgery and residents are noted as an exemption from QOF.
- Preventative footcare often provided by private providers - these may or may not be HCPC registered podiatrists. Accessing acute specialist footcare when a foot ulcer develops is often delayed or not initiated at all as a result of staff ignorance, patient immobility, transport or other factors that make trips to hospital difficult (e.g.dementia).
- A significant proportion of emergency foot admissions to hospital are for patients resident in care homes; additionally, on admission to hospital for any other reason, this group are far more likely than any other to have an existing acute foot complication noted on admission.
 - £6.5K HEE funding won for this project
 - We designed a diabetic foot daily check and care tool for use in Norfolk care homes, to ensure that residents with diabetes receive a daily foot check and that any concerns are escalated appropriately

- Delivery of several education sessions to care home staff across STP, in a 'train the trainer' format, to allow dissemination to all care home staff
- Over 300 staff trained in using the foot checker tool
- CQuIN incentive to social care funded beds to use the checker tool

Workstream 3: Education for NHS Podiatry Staff

- £12K HEE funding won to allow delivery of the College of Podiatry 'Diabetic Foot Module' locally for all NHS Podiatrists working in Norfolk & Waveney STP.
 - Improve the knowledge and skills of the podiatrists which will lead to fewer people with diabetes developing problems and better first line management of diabetic foot complications
 - All podiatrists passed this course
 - Increased knowledge in the diabetic foot and its management
 - An increased enthusiasm for delivering great care
 - More confidence in the management of the acute foot

Workstream 4: Engagement with Primary Care

- Focus group workshop with primary care staff from one CCG in the STP to identify reasons for late referral to acute foot clinics
- 3 reasons identified:
 - Poor Education (primary care clinicians not aware of protocols / significance)
 - Poor Education (patients not aware to check feet and seek help asap)
 - System barriers (differing procedures / practices between each practice)
- Actions:
 - £6K charitable funding won to provide 3 diabetic foot in primary care study days (in 2020)
 - 1000 posters printed (industry funded) for primary care to display for patients – 'peek and seek' campaign




If you have diabetes...

in good health
The Norfolk and Waveney Health and Care Partnership



Even small changes to your feet can lead to serious complications such as ulcers and amputations.

Check your feet *every day* and contact a health professional *straight away* if you notice any

-  cracks or open sores
-  weeping or bleeding
-  heat, redness or swelling

Never ignore a foot problem, however minor you think it is.

LOOKING AFTER YOU LOCALLY

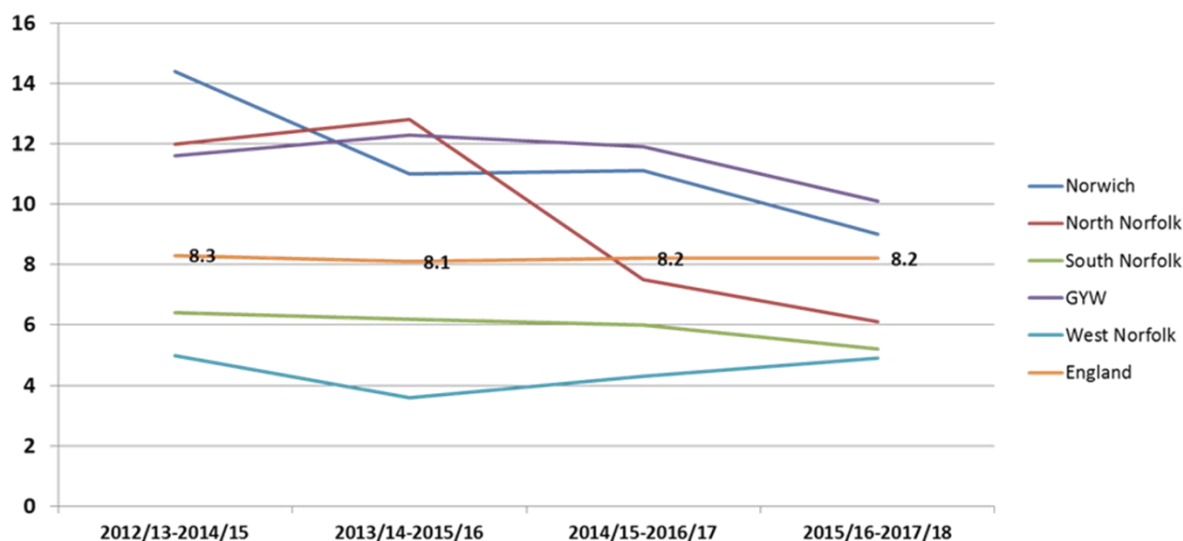
- Recognition that we cannot change individual practices ways of working, but we can articulate what good diabetes footcare looks like. So was created the Norfolk and Waveney 'Standards for Diabetes Footcare in Primary Care'
- Set of auditable standards for practices to aspire to, which were STP endorsed, and included:
 - Expectations for foot screening – staff training and updating
 - All patients screened and issued written advice re risk result, daily check and sos (via DiabetesUK information prescriptions)
 - Onward referral as required
 - Emergency care - expectation that all staff should understand significance of diabetes related foot complications and
 - Refer appropriately
 - Use local antibiotic guidelines

Workstream 5: Engagement with Community Nursing

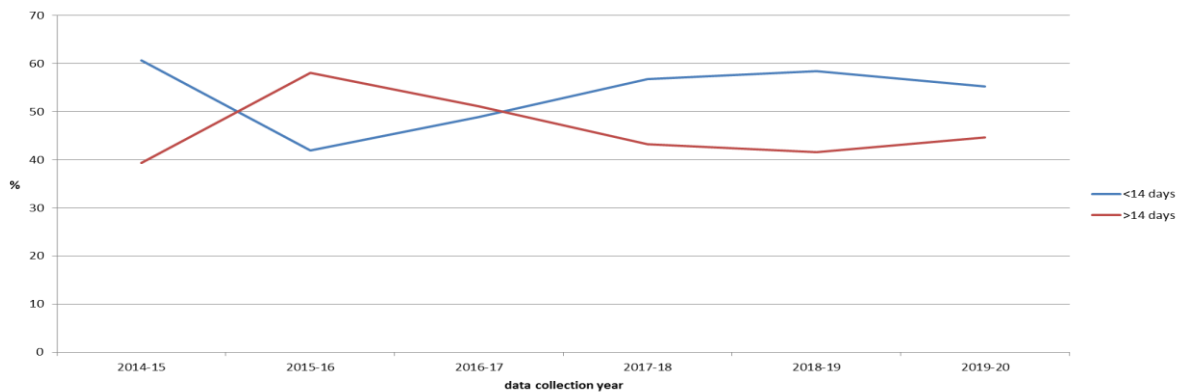
- Community nursing often first service to treat diabetic foot wounds, with care often delivered by Health Care Assistants
- Often in housebound or care home setting where access to good diabetes care may be difficult
- Accessing acute specialist footcare when a foot ulcer develops is often delayed or not initiated at all as a result of staff ignorance, patient immobility, transport or other factors that make trips to hospital difficult (e.g.dementia)
- Actions:
 - Creation of Diabetic Foot Intranet page for all community staff. Includes
 - Referral information
 - Training resources & guidelines
 - Patient education resources
 - Held community nursing focus group to identify barriers to referral
 - Modified nursing wound assessment template on SystmOne
 - Added 'Diabetic foot' tab to allow recording of any DFU lesions
 - Added referral guidance pop up
 - Added link to auto populated referral letter and
 - Created email referral address to allow immediate action whilst on visits
 - Communication of changes via weekly comms and team meetings

Results:

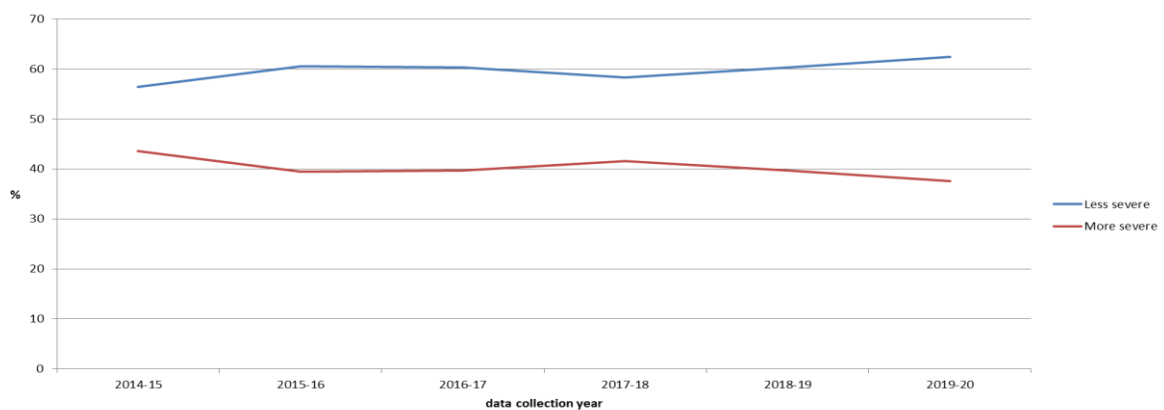
DSR Spells Major Amputation rates per 10,000 population years



Time to 1st assessment



NDFa data – Severity



- 100% of attendees at the Foot Health Practitioner study days found the sessions beneficial and requested further study opportunities
- NHS Podiatrists report an increased confidence in management of the diabetic foot
- Empirical reduction in late referrals from community nursing
- Increasing traffic to intranet site
- Improved relationships with primary care
- Perhaps most importantly, previously a group of separate specialist acute foot teams working in isolation, we are now a strong group with the contacts and skills to identify issues, act and bring others on board.

Key lessons:

- Find people with a similar passion and work with them
- Be prepared to put in the hours – often in addition to the day job!
- Engage with the STP leads
- Bid for as much outside funding as you can
- Data does not always give the whole story – audit of patients waiting over 14 days for 1st assessment revealed a significant proportion was as result of patient choice (transport, scheduling convenient appt), which is not reflected in NDFa data

Conclusions:

- Interventions will take time to embed
- We hope to see a reduction in time to 1st assessment at next NDFa year end

- Overall the QIC has given us the tools and drive to make changes to reduce the variation in care across the STP patch

Next steps:

- Further workstreams in progress
 - Successful bid for toe pressures kits and STP wide protocol
 - Professional study days in 2020 for primary care
 - FHP study day
 - Non-medical prescribing for specialist podiatrists
- Continuous evaluation of data
- Service development to reduce inequality

NaDIA Case study 1: East Suffolk and North Essex NHS Foundation Trust (Ipswich Hospital)

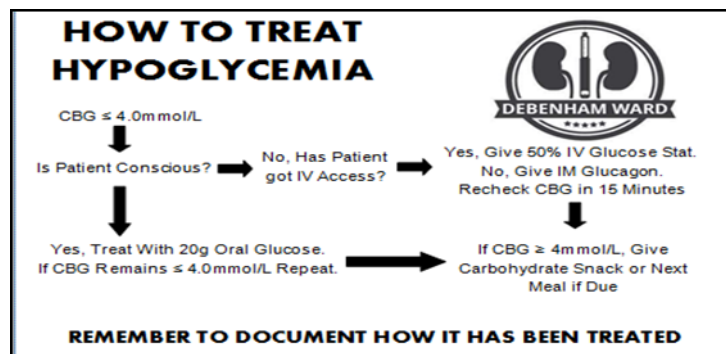
Aims:

To reduce harm to patients across four wards (two medical and two surgical) by:

- Reducing insulin errors by 20%
- Reducing overall medication errors by 10%
- Reducing hypoglycaemia (≤ 3.9) by 10%
- Reducing severe hyperglycaemia (≥ 17) by 10%

Interventions tested:

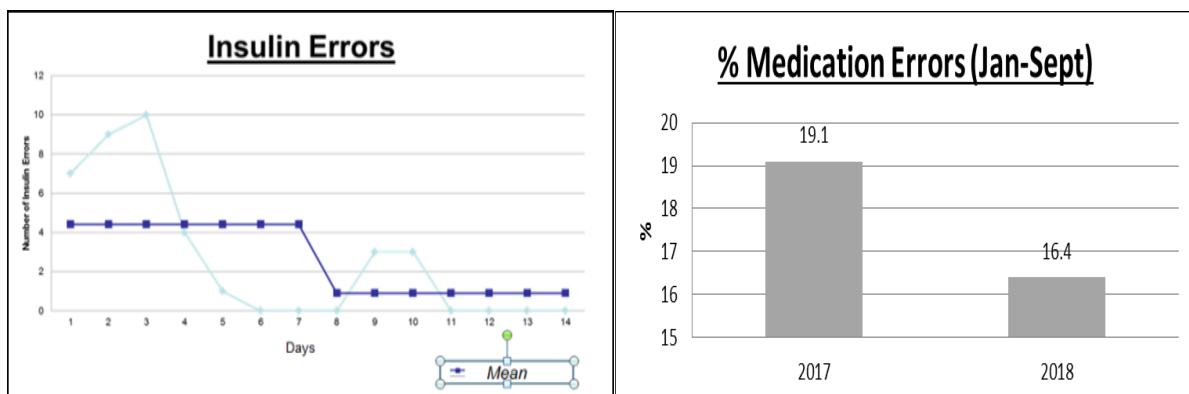
- Ward led initiatives:
 - Education board on oral medications,
 - Promoting self-administration through education in the daily huddle
 - 'Opt out' rather than 'opt in' self-administration
 - Hypo/hyper card created
- Prioritising medicine reconciliation for patients on insulin



Key lessons:

- Importance of engagement with front line staff- their ward, their patients, their project
- Sustainability is more difficult – good leadership is needed

Results:



	Baseline Audit	Audit 1
Patient Days	202	107
Insulin Errors	33.3%	5.9%
Oral Meds omitted correctly	89%	100%
Appropriate Patients SAMing	83%	89%
SAM Charts Signed/Documented	23%/61%	88%/88%
Treated for Hypoglycaemia	9.2%	8.8%

Conclusions and next steps:

The reduction in medication and insulin errors suggest the initial improvement interventions seemed to be effective. Engaging the ward staff to take ownership and to be involved in audit worked well in the first few months . However sustaining diabetes as a priority has been more difficult recently due to a number of factors including staffing issues. It is hoped that the next steps will help further achieve our aim of reducing harm to patients.

Next steps include:

- Re-audit
- Blood glucose alert
- Simplify hyperglycaemia protocol
- Roll out initiatives to other wards

NaDIA Case study 2: Oxford University Hospitals NHS Foundation Trust

Aims:

To reduce the number of inappropriately omitted regular subcutaneous insulin doses by 40% on target wards as monitored by electronic prescription administration document

Interventions tested:

- Providing staff education on different insulin types, duration of action and when to delay or omit doses in the form of 'espresso' teaching
- Review electronic prescribing system features to optimise insulin prescribing and documentation, providing technical training on how to reschedule doses and what key information to consider
- Trialling self-administration of insulin, with insulin kept in a wireless lockable bedside cabinet

Top three improvement suggestions (as voted for by ward staff)
Develop and deliver education to those who prescribe and administer insulin, improving knowledge of insulin types, their action and when to administer, delay or omit
Establish a self-management procedure, allowing patients to self-manage and administer insulin, keeping insulin safely stored at the patient bedside
Ensure that any decisions made during ward round are communicated effectively to appropriate ward staff

Subcutaneous Insulins in Adults

When to administer, when to omit and when to get advice

✓ Always give:

- Long acting (non-mealtime) insulins* where:
 - Patient is not eating or drinking, e.g. NBM**
 - Patient is on a variable or fixed rate intravenous insulin infusion
 - When CBG results are low or following treatment for a single episode of hypoglycaemia
- Short, rapid, pre-mixed or intermediate insulins* following treatment for an episode of hypoglycaemia (give 50% of the dose – if concerned about the risk of further hypo please ask for review by the clinical team)

If insulins are not immediately available on the ward, an emergency supply should be obtained through pharmacy

✗ Always omit:

- Short, rapid, intermediate or pre-mixed insulin* where patient is not eating or drinking, e.g. NBM or patient vomiting
- Short, rapid, intermediate or pre-mixed insulins where patient is on a variable or fixed rate intravenous insulin infusion

? Check with the clinical team if:

- Patient refuses to take insulin
- Erratic CBGs
- Patient has had three or more episodes of hypoglycaemia in previous 24 hours and is prescribed long acting insulin
- Insulin has not been prescribed or the prescription is incorrect

Request specialist team review if needed. Criteria and referral details for the Diabetes Specialist Team are available on the Diabetes – Adults [intranet site](#)

*Types of insulin:
Short acting insulins – e.g. Actrapid, Humulin S
Rapid acting insulin analogues – e.g. NovoRapid, Humalog, Fasp
Pre-mixed insulins & analogues – e.g. NovoMix 30, Humalog Mix 25 or Mix 50, Humulin M3
Intermediate acting insulin – e.g. Humulin I, Insulatard (also called isophane insulin)
Long acting insulin analogues – e.g. Lantus, Levemir, Torgo, Abasaglar, Tresiba

**Make sure the patient also receives glucose at the same time, e.g. glucose infusion, NG feed, TPN

C. Leon, C. Crowley, M. Magliozzo, A. Lumb, G. Yebra, S. Little, NaDIA QI project team, Oct 2018

Key lessons:

- Nursing shortages have prevented full engagement by front line staff, requiring a fully supported approach, resulting in the need to extend the project deadline
- There have been no clear standards on when to administer, omit or delay subcutaneous insulin doses but nurses have been expected to make these decisions on a daily basis
- Documentation of delayed or omitted subcutaneous insulin doses on the electronic prescription is inadequate to reliably and consistently determine whether actions were appropriate – this is only made possible by reviewing the full electronic patient record
- Training is a valued intervention, ward staff greatly appreciate the opportunity to engage with the diabetes team and receive specific training based on their everyday experience. We will continue timely and personalised teaching based on learning needs
- Setting up a project steering group did not prove to be the most effective way to communicate and engage with frontline staff due to severe staffing issues. Visiting wards/staff directly has been shown to be less time consuming overall and significantly more productive
- Ward staff are keen to implement self-administration of insulin. Next steps is to set up self-administration policy, install lockers and provide training to ward staff and patients
- Create a strategy to improve communication of ward round decisions to appropriate ward staff

NDTA Case study 1: Doncaster and Bassetlaw NHS Foundation Trust

Aims:

- To improve the average HbA1c across the caseload by 10%
- Completion of all 9 care processes
- Reduce DNA rates by 10%
- Engage the patient's to attend all outpatient clinic appointments 16-24 years.
- Engage all stakeholders to improve the service development.
- Reduction in DKA admission rates for all 16-24's by 10%

Interventions tested:

- Development of a business case to improve the transition service
- Development of a Gold Standard document
- Work programmes or 'Blueprints' to outline work plan
- Develop and maintain a database – evidence of care processes, DNA/CNA rates, admissions, HbA1c's (plus monthly average), appointments, tracking of blood results, Type 1 and Type 2 stats, caseload numbers, contacts tracking.
- Increased frequency/availability of slots in clinic
- Nurse-led clinics were available alongside dietitians and psychologist
- Full multi-disciplinary team (incl. dietitian & psychologist) now available
- Established links with and developing referral processes to external services e.g. smoking cessation, eating disorders, mental health, antenatal etc.
- Development of educational resources
- Improved access to diabetes technology
- Patient satisfaction conducted and reported
- Screening programme for anxiety, depression and diabetes distress
- Psychologist conducted qualitative research project - patient lived experience of T1 Diabetes and transition and reported on.

Results:

	17/18 Baseline	2018/19 Actual	2019/20 Actual
Number of Patients seen	-	211	95 at M6
Reduction in DKA admission rates for all 16-24's by 10%	49	54 (+10%)	30* (-39%)
Reduce DNA rates by 10%	35%	21%	32% at M6

- Reduction in DNA/CNA rate
- Improved HbA1c in patients accessing service – monthly average reduction
- More HbA1c measurements taking place
- Improved engagement including home downloading, attendance in clinic, text messaging and emailing
- Increase in clinic capacity is allowing service to review more young people, both across paediatric and adult clinics
- Point of care testing provides timely HbA1c results – motivational for patients wanting to improve their diabetes management and glycaemic control
- Young Adult Clinics are now fully populated

- Discharged patients and patients receiving care from the G.P have been encouraged to access secondary care and some have been referred back
- Identified 13 patients which we could access Best Practice Tariff for
- Patients with complex needs are being supported to access additional services
- Timely screening of mental health needs and emotional wellbeing being offered
- Individual psychology sessions were offered to those requiring psychological assessment and support however unclear whether this will continue

Key lessons:

- We have found it difficult as we are a pilot scheme and some uncertainty about whether the service will continue. We have lost a nurse and there is some delay regarding re-advertising the position
- We have also found that the community diabetes team have reduced their input, impacting upon our ability to support the caseload adequately

Conclusions:

- We have made a lot of progress but it is going to take time to see improvements as we have only just started gathering data. We have lost a nurse and there is a delay in recruiting another person into the post but we have made a lot of progress in 1 year
- Having an up-to-date data base and being able to show improvements in the service is vital for business case and for the service to continue
- We have to be aware that the data may show a dip due to current lack of resources and loss of psychology although links and IAPT service involvement in young adult clinics is vital at this time

Next steps:

- Continue to work through the blueprint
- Aim to trial wicked
- To get another person in post and hopefully more support for mental health
- To continue to improve capacity in both young person and young adult clinics
- To look at peer support and education for patients
- To provide education for team on how to work with young people.

NDTA Case study 2: Newham Hospital- Barts Health NHS Trust

Aims:

- To achieve a 20% increase in the percentage of patients who have an HbA1c of less than 58mmol/mol at the point of transition to young adults service by April 2020.
- After transition, for the HbA1c to be maintained or improved by at least 50% of young adults who transition into the Newham Young Adults Service by April 2021.

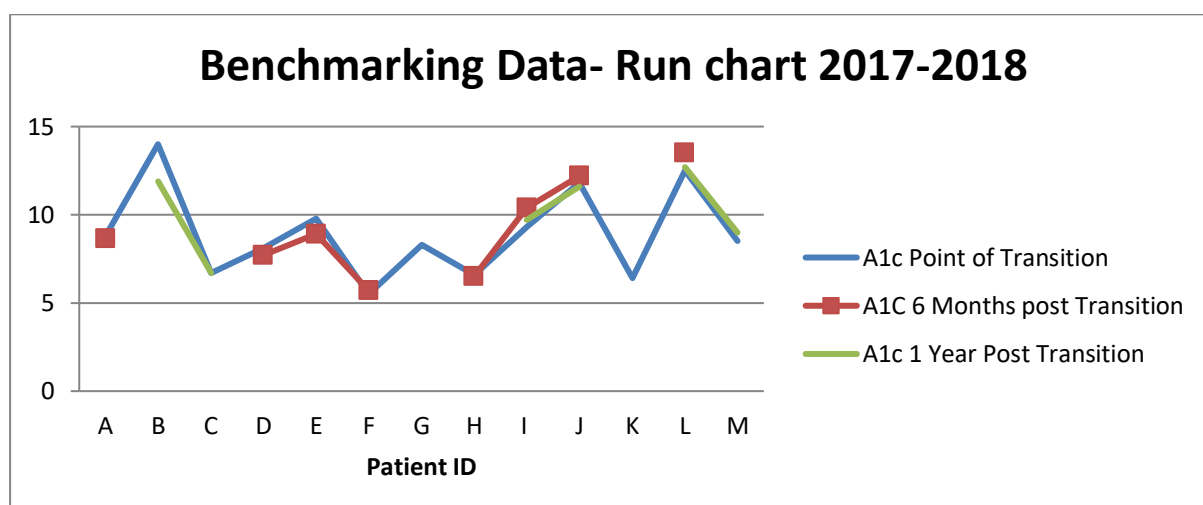
Interventions tested:

- Transition care plan (8/9 completed)
- Cross team working and shadowing (Paediatric team shadowing DAFNE, adult nurse and youth worker came to paediatric clinic)
- Updated YADS Leaflet
- Post transition questionnaire (6/9 returned)
- Implementation of Ready Steady Go Hello Programme
- Joint adult-paediatric Psychology support groups (STP investment)

Results:

- Data from patients transferred 2017-2018
- 13 patients in Benchmarking data set
- Aim to compare data for patients transitioning from July 2019 to July 2020 and follow these patients through to 1 year post transition in July 2021

	A1c at point of transition	A1c at 6 months post transition	A1c at 1 year post transition
Median HbA1c	69	72.5	82.5
% under 58mmol/mol	28%	25%	14%



Audit data 2019 - 2020		
Patient ID	A1c at point of transition	A1c at 6 months post transition
1	89	
2	49	48
3	59	
4	105	
5	33	
6	49	
7	79	
8	62	
9	64	
Median HbA1c	62	48
% under 58mmol/l	33%	100%

Key lessons:

- We realised we ARE doing a good job.....so far
- We are happy with our project aims, however time and resources have been challenging. We would like to keep up the momentum and hope to continue with this project.
- QI projects are very valuable for service development but it should be noted that much work is often achieved out of our normal working hours i.e. at home, during annual leave.

Conclusions:

- HbA1c at point of transition has improved, from 28% achieving a HbA1c <58mmol/mol to 33% during the project so far.
- Unable as yet to evidence six post transition data due to either DNA and/or not attending pathology (onsite HbA1c testing in paed's)

Next steps:

- Organise a workshop for transition patients on self-management. Invite Young Adult patients and Youth Worker also.
- Offer Online appointments – in the process of adopting 'Attend Anywhere' from NHS Scotland
- Evaluate questionnaire results and make service changes where possible
- Start monitoring DNA rates and look for ways to improve. Start looking at the DNA within Consider creating transition DNA policy
- Explore viability of obtaining a portable HbA1c analyser in the YAD clinic

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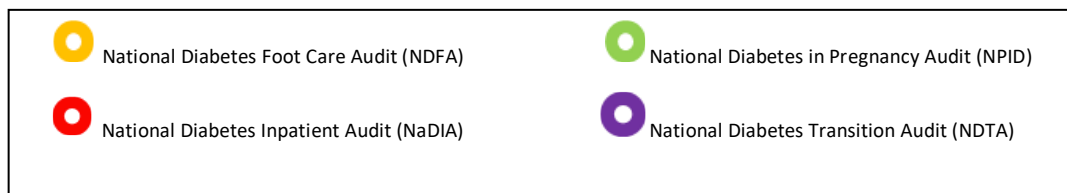
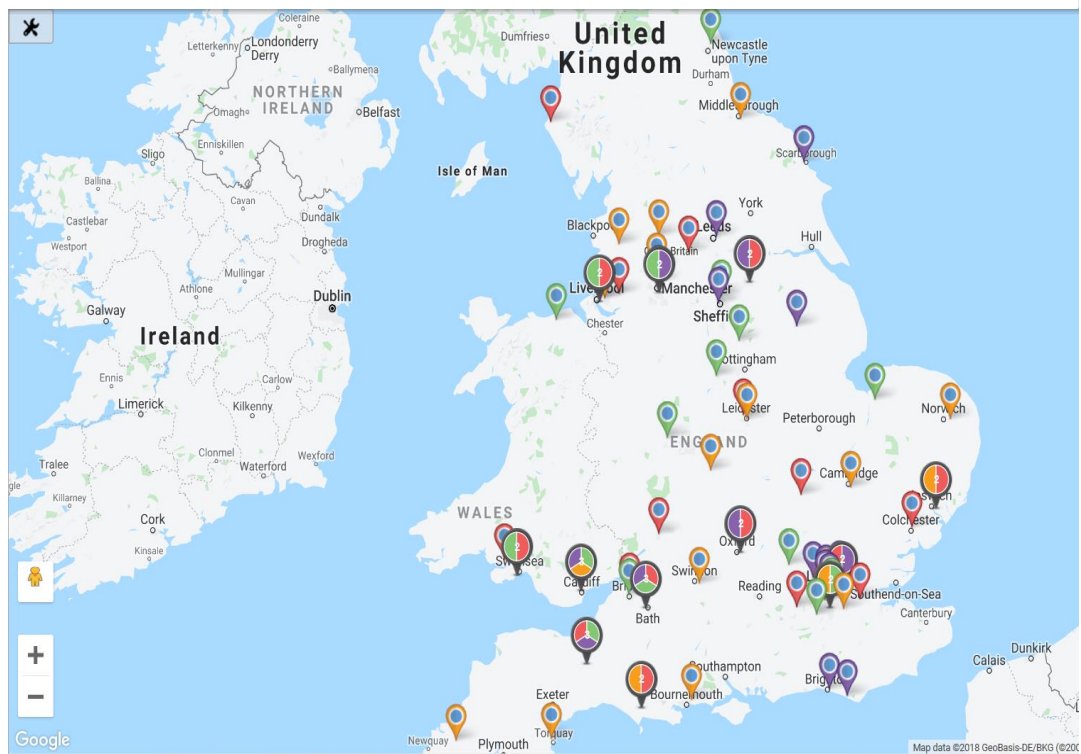
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Appendix 1:

National Diabetes Audit

Quality Improvement Collaborative 2017-2020 sites



Appendix 2: Workshop programme

9.00 – 9.30	Registration
9.30 – 10.00	Welcome and background
10.00 – 10.45	Setting aims and engaging others <i>Building upon the application and post-application support to set measurable aims.</i> <i>Patients, carers and colleagues on the team.</i>
10.45 – 11.00	TEA/COFFEE
11.00 – 11.15	Building an executable strategy <i>The use and population of driver diagrams.</i>
11.15 – 12.15	Tracking improvement and capturing plans <i>Reviewing data over time and developing a sustainable, local measurement plan.</i>
12.15 – 1.00	LUNCH
1.00 – 1.15	Patient story
1.15 – 2.15	Analysing local practices and capturing plans <i>Developing process maps and using reliable design to improve care</i>
2.15 – 3.45	PDSA & COM-B <i>The place and development of plan-do-study-act cycles within the model for improvement, and how they can be integrated with behaviour change theory.</i>
3.45 – 4.15	Driver action diagram <i>Extending local driver diagrams and making commitments about the next steps.</i>
4.15 - 4.30	Present driver diagrams and describe next steps <i>Learn what others are planning and have opportunity to win award!</i>
4.30 – 4.45	Next steps for the Collaborative