Evaluation of the NHS Diabetes Prevention Programme

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Plan

- CLAHRC Greater Manchester evaluation of local pathfinder site 2015-16
  - Referral to Diabetes Prevention Programme
  - Getting Messier with TIDieR
- DIPLOMA – national evaluation of NHS Diabetes Prevention Programme 2017-2021

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- Risk Score – brief questions
- Diagnosis - blood test – HbA1c & others
- No symptoms
- 5 -10% will develop T2 diabetes if untreated[1]
- Lifestyle changes leading to weight loss can reduce risk[2]

1. Diabetes UK. https://www.diabetes.org.uk/About_us/News/Prediabetes-whats-it-all-about/. 11.05.2016]
2. Hamman et al 2006; Yates et al 2007

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Diabetes Prevention Programmes

- Diabetes Prevention Programmes developed worldwide.
- Target those at risk and encourage change in lifestyle
- PHE meta-analysis (18 RCTs)[1]:
  - Diabetes incidence down by **26%** (95% CI 7,42%)
  - HbA1c reduction of **0.04** (95% CI .01,.07)
  - 2 hour glucose reduction of **0.28** (95% CI .00,.57)
  - weight reduction of **1.57** kg (95% CI .86, 2.28)
- Importance of weight loss

[1] Ashra et al. Public Health England 2015
[2] Barry et al BMJ 2015;351:h4717 doi: 10.1136/bmj.h4717

NHS Diabetes Prevention Programme

- Healthier You: NHS Diabetes Prevention Programme (NHS DPP) identifies those at high risk and refers them onto a behaviour change programme.
- 9 mths, 13 sessions, 16 hours
- Face to face (and digital pilot),
- Diet & exercise
- Roll-out to whole of England

Salford pathway

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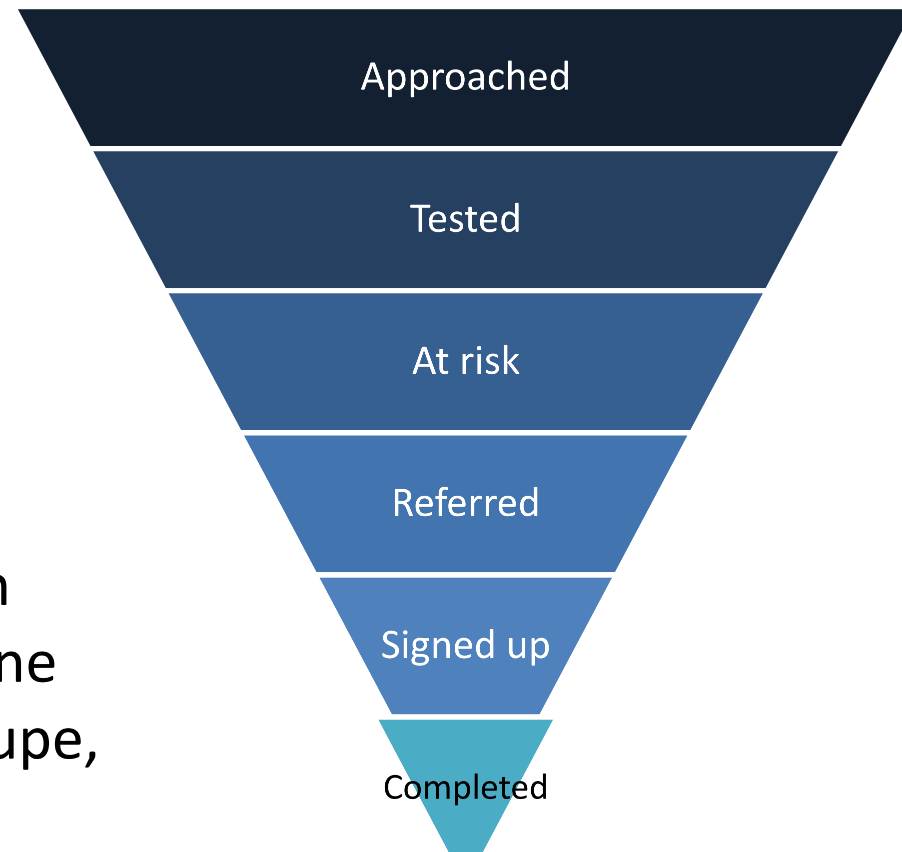
CLAHRC GM evaluation

Aim 2: Evaluate two interventions for identification and referral

- Community
- GP



Sarah Cotterill, Sarah Knowles, John Humphreys, Aneela McAvoy, Caroline O'Donnell, Michael Spence, Nia Coupe, Clara Weisshaar

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Two referral pathways

GP nurse facilitator

- Extra resource
- Search of medical records
- Information sessions with patients

Community referrals

- Local authority
- Voluntary sector
- Community based risk assessments & blood testing

Data collection

- 32 people in qualitative interviews/focus groups
- Quantitative service data from:
  - Telephone DPP
  - Exercise DPP
  - Community group
  - Health Improvement Service
- Unique identifier

RE-AIM framework

- Reach
- Effectiveness
- Adoption
- Implementation
- Maintenance

Glasgow et al. Evaluating the pubic health impact of health promotion interventions: the RE-AIM framework. Am J Public Health 2013 10.6

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Reach

Referrals to Telephone DPP (10 months)

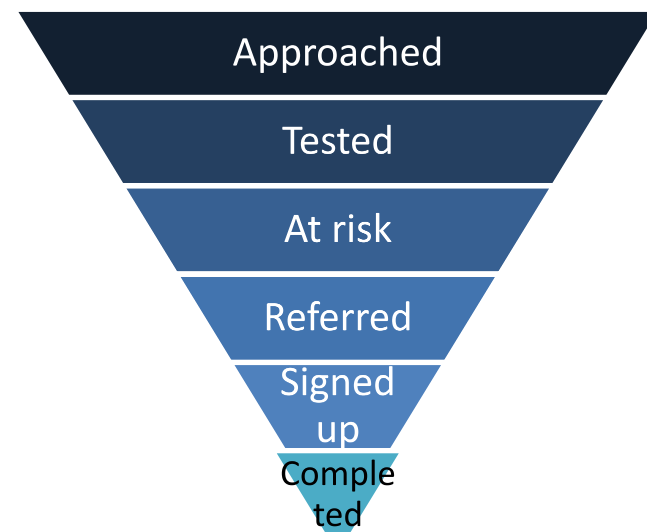
Source of referral	Number of patients referred to DPP
GP nurse facilitator (n=16 practices)	633
Other GPs (n= 30 practices)	55
Community	36
Total	724

Knowles, Spence, Coupe, Cotterill (under review) Referral of patients to diabetes prevention programmes from community campaigns and general practices: an evaluation using the Re-Aim framework and normalisation process theory.

Reach - Community

Community assessments and referrals

STAGE	Number (% of people with risk scores)
Approached	Not known
Diabetes risk score done	1163
HbA1c test done	746 (64%)
At risk of diabetes	71 (6%)
Referrals to Exercise & Telephone DPP	66 (6%)



Knowles, Spence, Coupe, Cotterill (under review) Referral of patients to diabetes prevention programmes from community campaigns and general practices: an evaluation using the Re-Aim framework and normalisation process theory.

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Reach – Equity (community)

- Compared to the local population, the people referred via Community route to DPP were more likely to be:
  - Older
  - Female
  - White
  - From less deprived areas

Knowles, Spence, Coupe, Cotterill (under review) Referral of patients to diabetes prevention programmes from community campaigns and general practices: an evaluation using the Re-Aim framework and normalisation process theory.

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Effectiveness

Telephone DPP: patient referrals and starts, by referral route

Source of referral	Referred	Started (% of referred)
GP nurse facilitator	633	288 (45%)
Other GPs	55	38 (69%)
Community	36	8 (22%)
Total	724	334 (46%)

* 2 patients were still in service.

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Adoption and Implementation

GP nurse facilitator:

- Supported by all parties
- Trust within the typical clinical system
- Nurse facilitator role in telephone service

Community referral:

- Lack of consensus
- Outside typical clinical system
- Targeting to at-risk populations vs making up the numbers

Knowles, Spence, Coupe, Cotterill (under review) Referral of patients to diabetes prevention programmes from community campaigns and general practices: an evaluation using the Re-Aim framework and normalisation process theory.

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Adoption and Implementation

“The intervention we are being asked to signpost into is an intervention that’s based in secondary care services at the hospital, and yet these people aren’t ill. So the whole fundamental way they think about it is to treat people in a clinical way, and it goes against the ethos and the way that we would work” (0030 Community referral provider focus group).

“If it’s just for a chat on the phone then I wouldn’t refer. If it was just to a health-care person then I’d do that in-house” (Primary care focus group 1)

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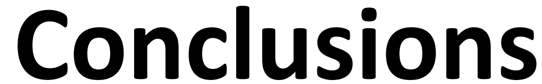
Maintenance

Source of referral	Referred	Started (% of referred)	Completed (% of started)
GP nurse facilitator	633	288 (45%)	212 (74%)
Other GPs	55	38 (69%)	27 (71%)
Community	36	8 (22%)	4 (50%)
Total	724	334 (46%)	243* (73%)

Knowles, Spence, Coupe, Cotterill (under review) Referral of patients to diabetes prevention programmes from community campaigns and general practices: an evaluation using the Re-Aim framework and normalisation process theory.



Conclusions

- DPP and other public health programmes need to reach beyond clinical settings.
- Importance of targeting high-risk populations
- Difficulty of referral between non-clinical and clinical settings

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GETTING MESSIER WITH TIDIER

TIDieR

Hoffmann et al. Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. BMJ. 2014; 7

TiDieR Checklist
Brief Name
Why
What (materials & procedure)
Who provided
How
Where
When and How Much
Tailoring
Modification
How well (planned & actual)

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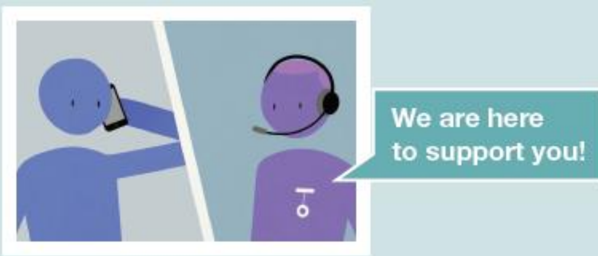
Use of TIDieR beyond trials

- Describes what was implemented.
- Allows replication in other settings/studies.
- Aids interpretation of findings
- Clearly delineates 2 or more similar interventions

Salford DPP



- Telephone DPP
- GP referrals DPP
- Community referrals DPP

- Methods:
- Documents, qualitative interviews, iteration.
- Applied TIDieR to 3 other projects
- 2 workshops

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Complexity

- NDPP is a multi-component intervention
  - Behaviour change theory
  - Behaviour change techniques
  - Who delivers
  - Frequency and duration
  - Location
  - Links to other services
  - **Outside the control of researchers**

Context

- Tension between:
  - Replication with fidelity
  - Tailoring to a particular context
- Context includes more than just place ….
  ….persons, resources, perspectives, activities

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Cotterill *et al. BMC Medical Research Methodology* (2018) 18:12
DOI 10.1186/s12874-017-0461-y

BMC Medical Research Methodology

DEBATE

Open Access

Getting messier with TIDieR: embracing context and complexity in intervention reporting

Sarah Cotterill[1*], Sarah Knowles[2], Anne-Marie Martindale[3], Rebecca Elvey[3], Susan Howard[4], Nia Coupe[5], Paul Wilson[2] and Michael Spence[4]

1. Fidelity and adaptation

TIDieR can capture the ‘messiness’ of research: changes and adaptations that occur over time.

Example: DPP Community: change in focus from high risk groups to high footfall.

2. Voice

Inclusion of voices beyond the research team allows better description of interventions, and introduces alternative/conflicting opinions

Example: Use of motivational interviewing in Telephone DPP

Findings

3. Dissemination beyond immediate context

TIDieR is excellent tool for describing the intervention for future implementers. But does not capture the local context

Example: Importance of existing community contacts for the Community referral DPP

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Findings

4. TIDieR as a research tool

- Structuring qualitative interview schedules
- Iteration with stakeholders

Example: Telephone DPP: use of TIDieR revealed tensions around whether clinical skills needed for delivery

Getting Messier with TIDieR: suggested additions

TiDieR checklist	Modification *new
Brief Name	
Why	
What (materials & procedure)	
Who provided	
How	
Where	
When and How Much	
Tailoring	
~~Modification~~	
How well (planned & actual) & context *new	
Voice *new	
Stage of implementation *new	

Cotterill S et al. Getting messier with TIDieR: embracing context and complexity in intervention reporting. BMC MRM 2018:18:12

DIPLOMA

Evaluation of the NHS Diabetes Prevention Programme (NHS DPP)

AND …Liz Howarth, Adrine Woodham, Elaine Cameron, Judith Gellatly, Kelly Howells, Patrick Burch, Claudia Soiland-Reyes, Thomas Mason, Rathi Ravindrarajah,.
Clinical lead: Simon Heller, Sheffield

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Broad aims

- Feedback regularly to NHS DPP stakeholders on delivery and outcomes to support development
- Rigorous long-term assessment of effectiveness of NHS DPP in reducing diabetes in a way that is cost-effective and sustainable

Who are we?

- Experienced multidisciplinary team
- Previous evaluations:
  - Whole Systems Demonstrators
  - Advancing Quality
  - Expert Patient Programme
  - DPP demonstrators
- Independent, comprehensive evaluation commissioned by NIHR
- Separate evaluation of digital DPP

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Workpackages

- WP 1 Access and equity
- WP 2 Implementation
- WP 3 Service delivery and fidelity
- WP 4 Outcomes
- WP 5 Comparative effectiveness
- WP 6 Validation sample
- WP 7 Comparative long term cost effectiveness
- WP 8 Programme management

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WP 1 Access and equity

- Do inequalities exist for:
  - Identification of eligible patients:
    - compare prevalence in those ‘at risk’ of diabetes from representative surveys with patients identified ‘at risk’ in DPP
  - Referrals:
    - compare patients referred and not referred
  - Completion (with WP4):
    - compare completion rates
  - Effectiveness (with WP4):
    - compare outcomes

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WP 1 Access and equity

- What is the experience of patients and professionals in accessing NHS DPP?
  - Observation of consultations discussing risk
  - Interviews with professionals and patients to explore understanding of risk and decisions about referral
  - Interview eligible patients who have not been referred, and people who have declined

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WP 2 Implementation

- To assess implementation of the NHS DPP
- What are the barriers and facilitators to implementation in local areas?
  - longitudinal interviews with designated local leads
- What are the barriers and facilitators to implementation in practices?
  - GP sites to explore identification and referral

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WP 3 Service delivery and fidelity

- To what extent do provider programmes (protocols, manuals) map onto NICE and DPP specifications?
  - Coding
- To what extent does training of NHS DPP staff address appropriate content?
  - Observing training
- To what extent is the NHS DPP intervention delivered with fidelity?
  - Observing sessions
- To what extent is the content of the NHS DPP intervention understood by recipients?
  - Interviewing patients

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WP 4 Outcomes

- How well do patients participate in the NHS DPP?
- Does participation vary by service and patient characteristics?

- What outcomes do people achieve in the NHS DPP?
- Do outcomes vary by service and patient characteristics?
  - Analysis of the individual level data collected by providers
  - No comparator group

WP 5 Comparative effectiveness

- To assess whether NHS DPP is more effective than usual care in reducing conversion of non-diabetic hyperglycaemia to diabetes, eventually reducing diabetes prevalence in England
- The roll-out of the programme makes formal RCT problematic
- WP5 uses routine data and statistical techniques to provide a rigorous estimate of the success of the programme in:
  - reducing conversion of non-diabetic hyperglycaemia (incidence)
  - reducing the overall numbers of cases of diabetes (prevalence).

WP 5 Comparative effectiveness

- Leverage UK strength in routine data and local expertise in analysis to assess NHS DPP impact

- Data sources

  - Two primary care databases (CPRD, ResearchOne)
  - GP diabetes registers
  - (National diabetes audit)

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WP 6 Validation Sample

- Survey of 400 patients at risk of diabetes
- Comparison of DPP attenders, decliners and non-referred

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WP 7 Comparative long term cost effectiveness

- Drawing together WP findings, use an economic model to explore:
  - What are the short-term benefits of NHS DPP, and the cost consequences of changes in health service utilisation?
  - What are the expected long-term health benefit consequences of NHS DPP, and the expected long-term cost consequences?
  - Is the NHS DPP cost-effective compared to usual care?
  - How does equity affect the overall cost effectiveness of NHS DPP?
  - What changes would improve short and long-term cost effectiveness?
- Building on (but not restricted to) the ScHaRR model

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Patient and public involvement

- 6 patient and public contributors
- The first 3 PPI meetings have taken place (October 2017, Feb 2018, May 2018)
- Issues discussed so far include:
  - discussions on WP1 qualitative and WP4
  - Development of animation

Dissemination…

Forthcoming public engagement animation

Dissemination…

DIPLOMA web page

DIPLOMA – Evaluation of the national NHS Diabetes Prevention Programme

HEALTHIER YOU

NHS DIABETES PREVENTION PROGRAMME

Project:

DIabetes Prevention – LOng term Multimethod Assessment (DIPLOMA) of the implementation, delivery and outcomes of the *'Healthier You: National Health Service Diabetes Prevention Programme'* (NHS DPP)

What is the Diabetes Prevention Programme?

The increasing number of people being diagnosed with Type 2 Diabetes Mellitus (T2DM) and at risk of complications has made the disease a major public health concern. Increased levels of blood glucose, known as non-diabetic hyperglycaemia (NDH) and detected by a simple blood test, can provide an early warning sign that people are at risk of developing T2DM. Blood glucose levels, along with associated risk of developing T2DM, can be reduced by addressing lifestyle choices.

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Dissemination…

Bi-monthly blogs, published by CLAHRC GM and NIHR

- How is the NHS Diabetes Prevention Programme being implemented?
- Working at the Sharp End of an NHS Initiative: Making Sense of GP and Nurse Views on the NHS Diabetes Prevention Programme
- NHS Diabetes Prevention Programme – Fair and Equal Access

How is the NHS Diabetes Prevention Programme being implemented?

Working at the Sharp End of an NHS Initiative: Making Sense of GP and Nurse Views on the NHS Diabetes Prevention Programme

NHS Diabetes Prevention Programme – Fair and Equal Access

HEALTHIER YOU
NHS DIABETES PREVENTION PROGRAMME

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NHS National Institute for Health Research

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Thank you

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Salford DPP evaluation: http://clahrc-gm.nihr.ac.uk/our-work/exploiting-technologies/national-diabetes-prevention-programme/

DIPLOMA **http://www.clahrc-gm.nihr.ac.uk/projects/diploma-evaluation-national-nhs-diabetes-prevention-programme/**