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Applying digital tools to improve physical healthcare in a mental health trust; a collaborative approach

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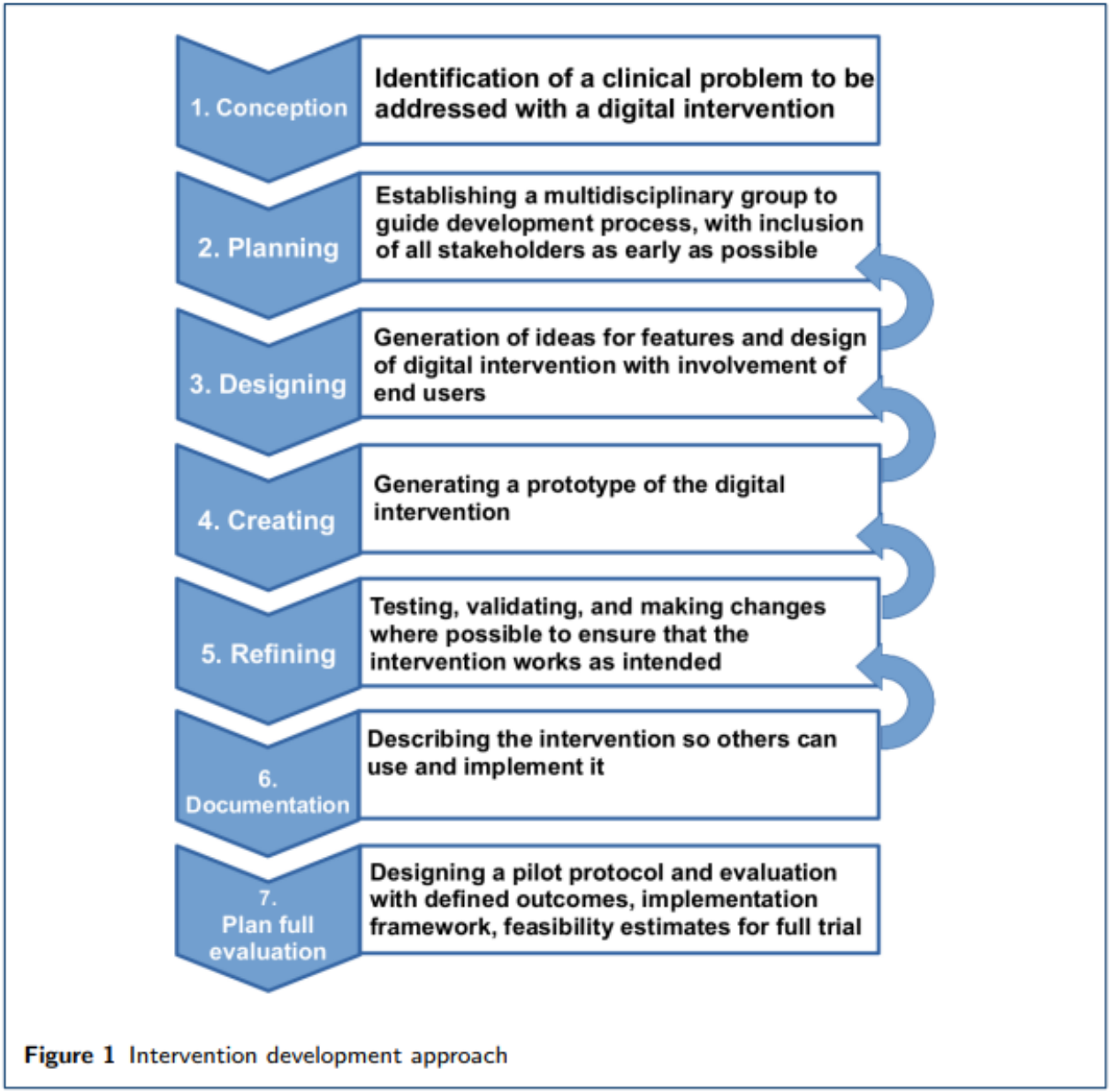

Figure 1 Intervention development approach

[O'Cathain et al, 2019]

The Clinical Problem

- People with serious mental illness (SMI) such as schizophrenia, schizoaffective disorder and bipolar affective disorder have a significantly reduced life expectancy attributable to physical health causes
- Significantly more cardiovascular disease risk factors eg high blood pressure, elevated blood sugars (Diabetes) in SMI compared to the general population [Vancampfort et al, 2015]

The Clinical Problem

- Diabetes refers to a group of metabolic disorders characterised by a high blood sugar level over a prolonged period of time.
- If left untreated or poorly managed, diabetes can lead to various long-term health complications including cardiovascular disease, stroke, chronic kidney disease.
- Improvements to the primary prevention of physical health illnesses like type 2 diabetes in the general population have not been replicated to the same extent in people with SMI [Hayes et al, 2017].

The Clinical Problem

- Prevalence of diabetes 2-3x higher in schizophrenia compared to general population (Vancampfort et al, 2016)
- Need for research into more targeted and clinically informed interventions that improve the standard of physical healthcare screening and interventions offered to people with SMI across both primary and secondary care settings

1. Addressing the clinical problem

- Could applied informatics / digital tools help improve the standard of diabetes care in secondary mental health setting?

2. Planning

Formation of multi-disciplinary team with all relevant stakeholders;

NHS Clinicians and academics – Psychiatry, Diabetes, Pharmacy

NHS digital clinical systems – software developer, safety officer, Information governance, chief clinical information officer

Health informatics – software developers, and academics at university

PPIE - Patient and Public Involvement and Engagement (PPIE)

Implementation Science – academics with expertise in evaluating interventions

Electronic Health Records

Data in record is either structured (numbers)

or unstructured (free text)

CogStack

PHIDL
Precision Health
Informatics Data Lab

CTI
Centre for
Translational
Informatics

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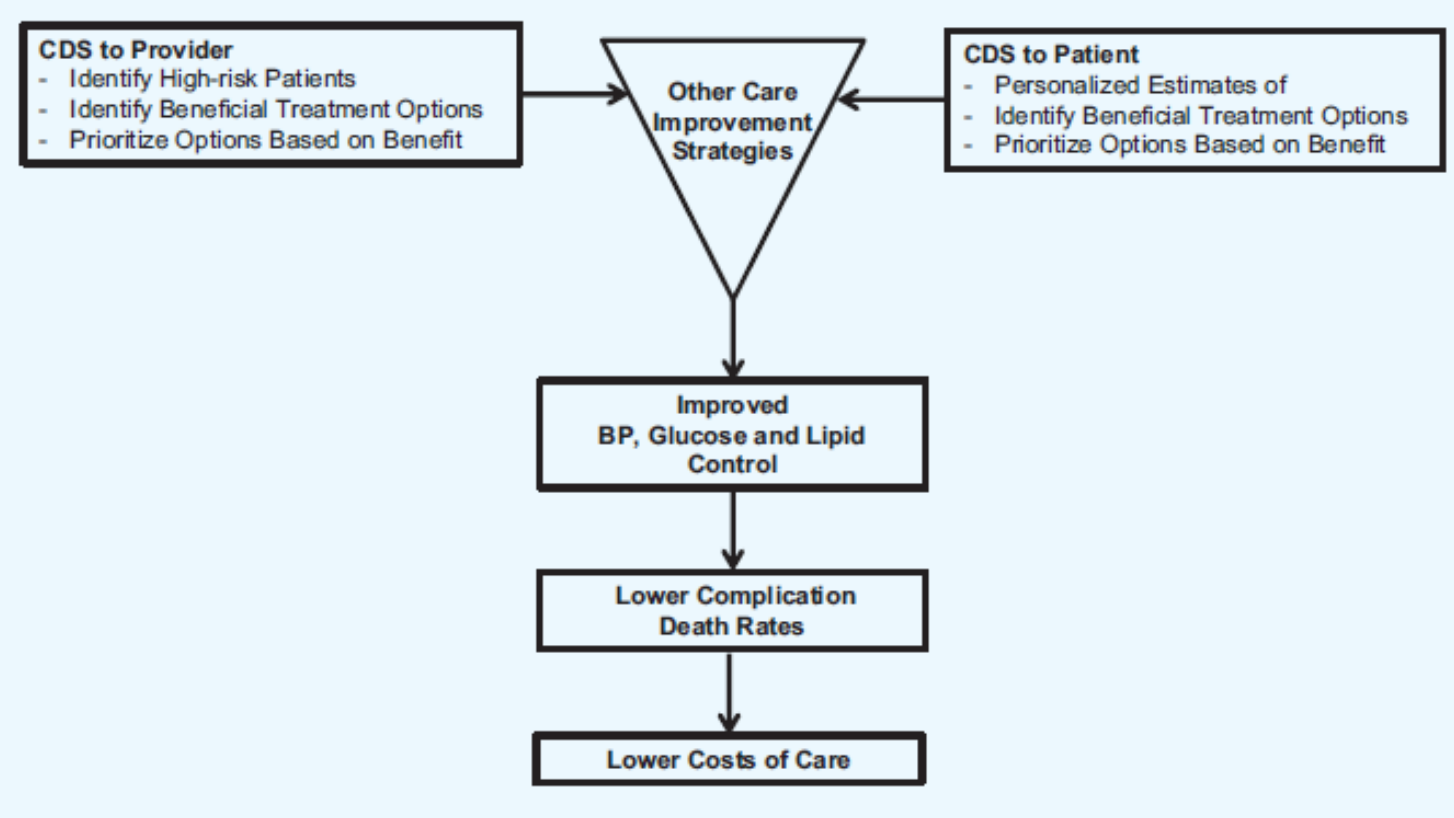
[Jackson et al, 2018.]

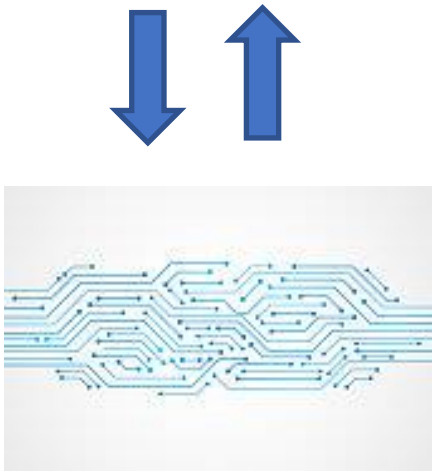
3. Designing

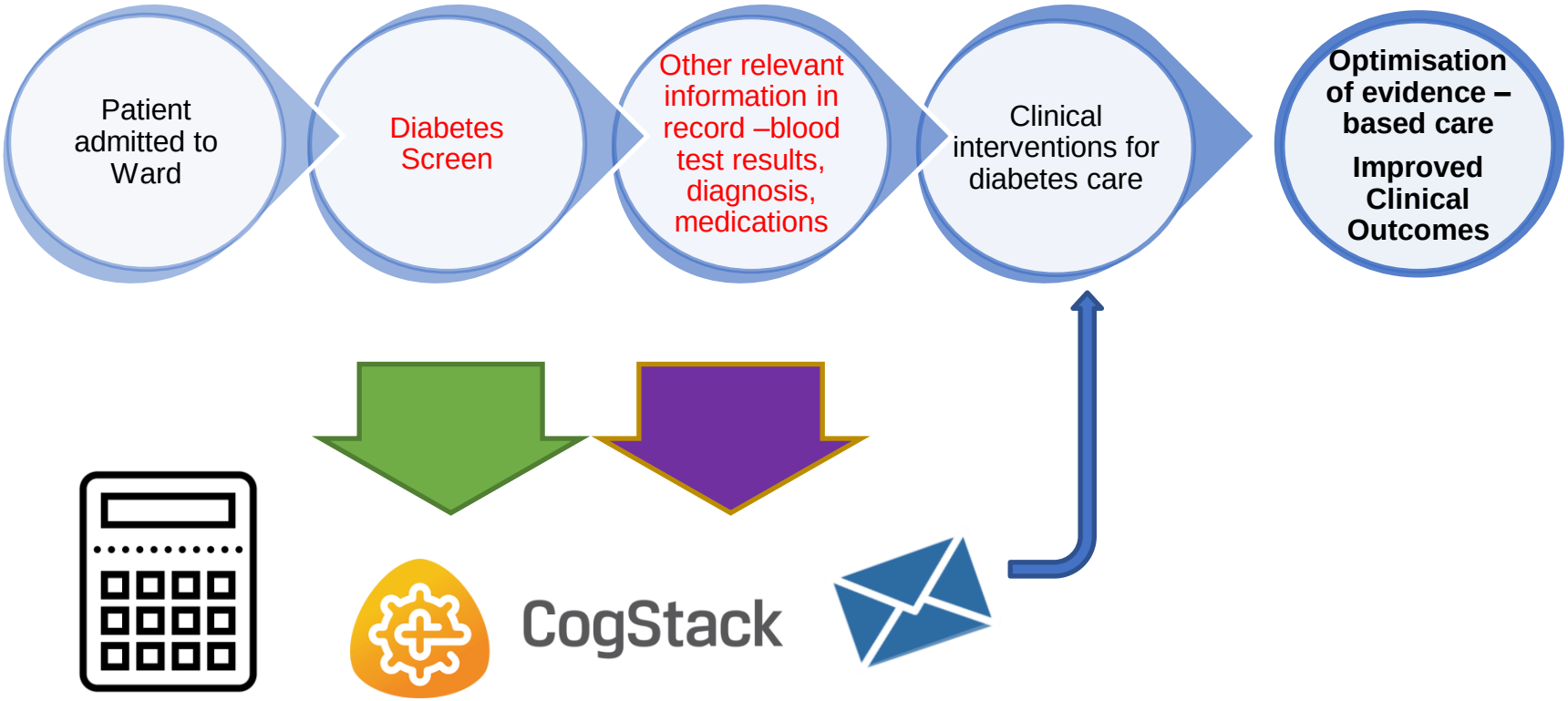
Electronic clinical decision support systems (eCDSS) are well established as a strategic method of improving care for prevention and management of chronic conditions.



CogStack @ Maudsley

CogStack




Patient admitted to Ward
Diabetes Screen
Other relevant information in record –blood test results, diagnosis, medications
Clinical interventions for diabetes care
Optimisation of evidence – based care
Improved Clinical Outcomes
CogStack

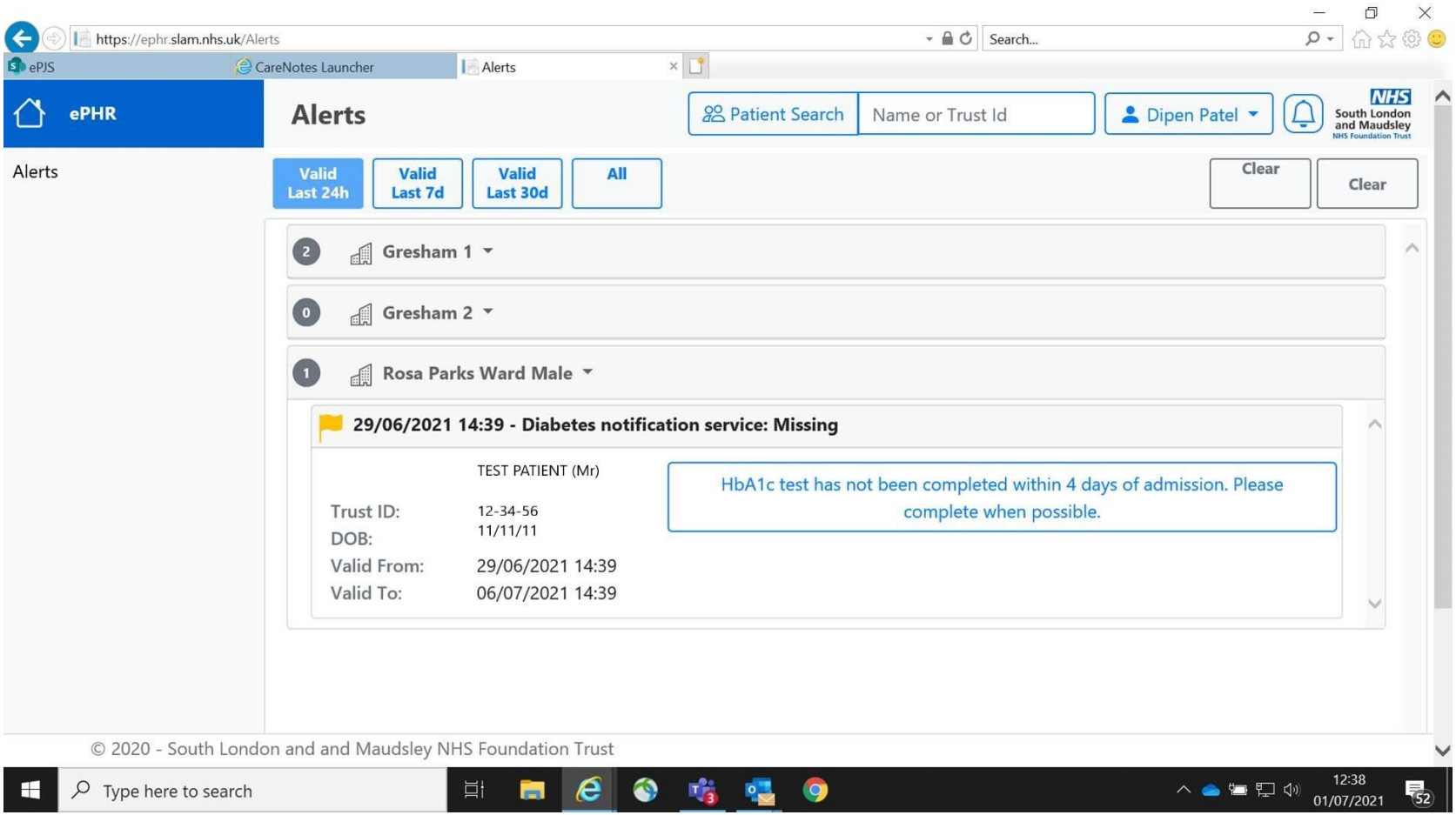
3. Designing

- Design considerations based on existing literature;

- 3 R's – Right information to Right person at Right time;

- Embedded within existing workflow
- Accurate and timely information
- Relevant to patient
- Manageable number of alerts

4. Creating prototype



5. Refining / validating

- Continuous development process
- Regular meetings with stakeholders
- Validation work to ensure system works as expected
- NHS digital clinical safety and governance approvals

6. Documenting

- Description of the digital tool and early development process so that others can replicate (paper under review)

7. Plan full evaluation - Pilot

- Randomized trial conducted in inpatient ward settings
- Wards will be the unit of recruitment and assigned to either the intervention or control group
- Aim to recruit 4 wards. 4 month follow up
- Recruitment of clinician-end users (medics, senior nurses, pharmacists)
- Recruitment currently in progress

7. Plan full evaluation – Pilot

- Primary outcome relates to the acceptability and feasibility
- Secondary outcomes relate to process of care measures ; screening rates for diabetes, changes in prescribing, referrals for lifestyle change interventions eg dietetics, smoking cessation.
- Feedback via pre- and post- study surveys and individual interviews will be conducted with participating clinicians on recruited wards.
- An evaluation of the implementation of the eCDSS will be conducted ; several implementation outcomes will be evaluated, based on established implementation science frameworks.

Summary

- Applied informatics tools have the potential to improve clinician led management of diabetes in inpatient mental health settings
- If found to be feasible and acceptable, then in combination with results of the implementation evaluation, the system can be refined and potential problems with future successful implementation addressed
- Larger studies can then be conducted to assess impact on clinical outcomes and to inform scalability and application to other conditions, in wider healthcare settings
- Collaborative approach from the very start is key in optimising chances of successful intervention and implementation

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