Implementing Outcomes

London supporting the implementation of HoNOS and DIALOG

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Use of Outcome Measures in London

London has an agreement to use Health of the Nation Outcomes Scales (HoNOS) as the consistent London CROM, DIALOG as the PROM (for EIP services and CPA initially), and friends and family test.

The Healthy London Partnership Mental Health in Integrated Care Systems programme, led by Carolyn Regan and Tonia Michaelides, has provided support to Trusts to develop a series of tools for each outcome measure to support implementation across London.

The purpose of this presentation is to provide an update on the London support for the implementation of DIALOG and use of HoNOS

The development of the outcomes tools have been clinically led and developed in partnership through the following forums:

- The London Early Intervention Psychosis Clinical Reference Group (chaired by Jonathan West)
- London Mental Health in Integrated Care Systems Clinical and Technical group (chaired by Dr Asif Bachlani, SWLSTG and Dr Rahul Bhattacharya, ELFT and technical lead Debbie Taylor, NELFT)
- The London DIALOG implementation steering group (chaired by Paul Calaminus, ELFT)
Common themes identified with regards to barriers affecting implementation of outcomes

Implementing Outcomes

- Time
- Education and Training
- IT interface
- Senior buy-in
Support model

Analytical framework

Service user engagement

DIALOG Implementation

Operational manual

Resource implications

Education and Training
To support the commitment of using DIALOG as a PROM for London, the London Mental Health in Integrated Care Systems (MHICS) team has developed:

- **An animated video** aimed at service users who have a mental health illness to describe how they can use DIALOG and DIALOG+ to help support them with their recovery.

- **Service user case study video** to communicate the benefits of DIALOG for service users and carers.

- **An analytical framework** which will enable data to be routinely fed back in a meaningful, visually appealing, easily interpretable format to both patients and clinicians.

- **Develop an operational manual** to provide Trusts with consistent approach to implementation and additional resources.

- **Training and development slides** to ensure that DIALOG is used correctly and consistently by clinicians and promote understanding of the value and utility of using DIALOG as a PROM.

- **Development of a DIALOG Service user involvement forum** to support implementation and help drive quality and understand value.
Spreading joy with DIALOG

Support personal recovery

Quality improvement

Improve care planning

Data innovation

IT excitement
This animation is aimed at service users who have a mental health illness. The animations talks about how service users can use DIALOG and DIALOG+ to help support them with their recovery.
HoNOS

Working in partnership to improve services for Londoners
HoNOS training tools

HoNOS
To support the commitment of using HoNOS as a CROM for London, the London Mental Health in Integrated Care Systems (MHICS) team has developed:

1. **Core training slides and video** to ensure HoNOS is used correctly and consistently by clinicians and promote understanding of the value and utility of using HoNOS as a CROM.

2. **Analytical framework, Analysing the data slides and video** (HoNOS profiles and Categorical Change) which will enable data to be routinely fed back in a clinically meaningful, visually appealing, easily interpretable format at a clinician and team level.

3. **Case study practice examples** for clinicians to practice rating HoNOS to support consistent and accurate rating of HoNOS.

Next steps:

1. **Find a digital solution** that reduces the burden of clustering.
Approaches to analysing HoNOS

The following slides show the aggregated average HoNOS scores of all the patients in a particular service. The aggregated profile gives an overall view of patients’ progress during their treatment within a particular service or team. Aggregated HoNOS scores can be used for a particular service type such as community based services, inpatient, Home Treatment Teams, Early Intervention in Psychosis etc.

The profile can also be viewed for an individual patient, to provide a view of that patient’s progress during treatment.

In the next slides we will look at HoNOS profiles for different mental health services to better understand how to analyse the data effectively.
HoNOS scales

Using HoNOS as a clinician reported outcome measure allows clinicians to build a picture of service users’ needs across a range of areas. It incorporates broad scales such as mental health, safety, physical health, relationships, housing and functioning.

The 12 scales can been seen below, with example scorings:

<table>
<thead>
<tr>
<th>Scale</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Severity description</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Overactive, aggressive, disruptive or agitated behaviour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>no problem</td>
<td>0</td>
</tr>
<tr>
<td>2. Non-accidental self injury</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>minor problem requiring no action</td>
<td>1</td>
</tr>
<tr>
<td>3. Problem drinking or drugs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>mild problem but definitely present</td>
<td>2</td>
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<tr>
<td>4. Cognitive problems</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>moderately severe problem</td>
<td>3</td>
</tr>
<tr>
<td>5. Physical illness or disability problems</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>severe to very severe problem</td>
<td>4</td>
</tr>
<tr>
<td>6. Hallucinations and delusions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Depressed mood</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8. Other mental and behavioural problems</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Relationships</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Activities of daily living (ADL)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Living conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Occupation and activities</td>
<td></td>
<td></td>
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</tbody>
</table>
Setting a minimum score

Services which provide for a varied caseload will have a large variation in HoNOS scores. Some patients will have no problem (score of 0) or a minor problem requiring no action (scoring 1) for some of the HoNOS scales. Where the initial score is 0 or 1, the second score is also likely to be 0 or 1. When looking at the average team score for each scale, if results with an initial score of 0 or 1 are included, they can dilute the average change for the team and can mask the improvement made by patients who do score highly in a given scale.

One way around this is to only include in the analysis the HoNOS scales which were scored 2 or above in the initial rating.

This chart shows the profiles with all patient scores included – i.e. including any initial scores of 0 or 1 when calculating the team average. This can have the effect of masking the improvements made by patients who do score highly in a given scale. You can see in this chart there is little difference between initial and final scores.

Patients with scores of 0 or 1 require no active medical or formal psychological treatment for those areas/scales, so will not receive an intervention from specialist (secondary) mental health services.

A minimum initial score of 2 has been chosen (mild problem but definitely present) to set the minimum threshold for analysing aggregated HoNOS profiles for each service. This score reflects the severity of symptoms or difficulties that would normally be treated in secondary care.

In this graph only the scales where 2 or above has been scored have been included in this data. This now demonstrates significant difference.
Effect size

It can be hard to judge the size of the improvement just by looking at the graphs.

Using ‘effect size statistics’ such as Cohen’s $d$ can aid interpretation as it calculates the significance of the change:

\[
\text{Cohen’s } d = \frac{\text{Mean difference}}{\text{Standard deviation}} = \frac{\text{Mean}_2 - \text{Mean}_1}{\text{Pooled standard deviation}}
\]

<table>
<thead>
<tr>
<th>Effect Size (Cohen’s $d$)</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.8 or lower</td>
<td>Improvement of critical clinical importance</td>
</tr>
<tr>
<td>-0.5 to -0.8</td>
<td>Improvement of moderate clinical significance</td>
</tr>
<tr>
<td>-0.2 to -0.5</td>
<td>Small or clinically negligible improvement</td>
</tr>
<tr>
<td>-0.2 to 0.2</td>
<td>No change</td>
</tr>
<tr>
<td>0.2 to 0.5</td>
<td>Small or clinically negligible deterioration</td>
</tr>
<tr>
<td>0.5 to 0.8</td>
<td>Deterioration of moderate clinical significance</td>
</tr>
<tr>
<td>0.8 or higher</td>
<td>Deterioration of critical clinical importance</td>
</tr>
</tbody>
</table>

The more extreme the effect size (positive or negative), the more statistically significant we would determine the change to be.
Analysing an effect size

Trusts may want to look in more detail at particular scale(s), patient characteristics or diagnoses, to explore any unwarranted variation in the impact of treatment on patients within a service.

The chart below provides an example of how effect size for scale 2 (non-accidental self-injury) can be looked at across different teams within a community mental health service.

Here, you can see the variation across teams. These differences can be accounted for by various factors such as:

- number of paired measures (‘n’)
- data quality
- variation in the recording practices of different teams
- staffing levels
- caseload of various teams
- complexity of patients seen
- clinical practices and clinical pathways

The above analysis provides a starting point for discussion and should enable the clinician to ask questions about the differing outcomes of the services notwithstanding the data quality. The example provided here is looking at a particular HoNOS scale, however the grouping could be done at any level including protected characteristics (ethnicity, gender etc.) or diagnosis, and could in future be used to complement discussions around equity of care.
Adult Acute

This data shows the improvement or progress patients have made whilst in an inpatient unit (using aggregated profiles).

Looking at the HoNOS profiles and effect size for adult acute patients, the most significant improvements are in agitated behaviour (1), self-harm (2) and living conditions (11).

This would be expected as patients who are admitted to acute wards are more likely to be agitated or distressed, and/or have recently experienced an incident or thoughts of self-harming behaviour. It would be expected that treatment on the ward would help these symptoms.

N.B Treatment from an inpatient unit would not necessarily directly improve accommodation but in order to support discharge planning there would be need to be stable accommodation and so accommodation status (11) should improve during an admission.

N.B the above graph only includes ratings with an initial minimum score of 2.
Early Intervention

This data shows the improvement or progress patients have made whilst in Early Intervention in Psychosis (EIP) services (using aggregated profiles).

As seen on this chart, the change from initial scores (red line) and discharge scores (blue line) as measured by effect size, are similar to those seen in adult acute. The initial scores are slightly lower than for adult acute across all HoNOS scales, which would suggest that patients are not as severely ill.

Looking at the HoNOS profiles and effect size for EIP patients, there are clinically significant improvements across every HoNOS scale.

The most significant improvements are in agitated behaviour (1), self-harm (2), problem drinking and drugs (3) and living conditions (11). On this chart there is also improvement in psychotic symptoms (6) but this is not the greatest improvement.

N.B the above graph only includes ratings with an initial minimum score of 2.
Adult CMHT

This data shows the improvement or progress patients have made whilst in a community mental health team (CMHT) using aggregated service profiles.

One would expect that the initial scores (when a person enters the service) would generally be lower than that for adult acute services.

The case-mix of CMHT teams is likely to be broad, with a wide range of symptoms. This graph provides an aggregated view of a Trust’s CMHT service, covering all diagnoses. Trusts may wish to further analyse their CMHT data cut by diagnosis code.

Looking at the HoNOS profiles and effect size for CMHT patients, there are clinically significant improvements across many HoNOS scales.

N.B the above graph only includes ratings with an initial minimum score of 2.
Older Adult

This data shows the improvement or progress patients have made whilst in an Older Adults service (aggregated scores), which is a service for treating mood and psychotic disorders as well as cognitive disorders.

Looking at the HoNOS profiles and effect size for Older Adult patients, there are clear improvements for some symptoms such as self-harm (2), hallucinations and delusions (6), relationships (9) and living conditions (11).

There may be no (or limited) improvement in symptoms such as cognitive problems (4), physical health problems (5) and activities of daily living (10). This may be due to the nature and life course of conditions in older people. For example, Dementia which is a progressive illness where some of the symptoms may not improve or even deteriorate following the initial assessment and treatment.

The red line is when the patient first enters the service
The blue line is the last HoNOS completed within the last 12 months.

N.B the above graph only includes ratings with an initial minimum score of 2.
Splitting the data

The case-mix of older adult services is likely to be broad, as it treats both mood and psychotic disorders as well as cognitive disorders. Trusts may wish to split the data into ‘memory service’, which would primarily treat cognitive disorders, and ‘general older adult service’ to see if there are different profiles and outcomes. We have done this here, as an example.

On review, the profiles for both graphs are very similar, however this may not be the case for Older Adult services within other Trusts. Trusts can carry out analysis and decide whether it is worthwhile to split up the data for individual services, for example by team type or diagnosis.

The red line is when the patient first enters the service
The blue line is when the patient is discharged from the service
Effect size (Cohen’s d)

N.B the graphs only include ratings with an initial minimum score of 2.

N.B this data includes Older Adult CMHTs and the Older Adult challenging needs service which may also include patients with Dementia.
Categorical Change

The Categorical Change method is another way of looking at changes in HoNOS score.

It uses a scoring method which groups the answers scored for each question into two categories:

- **Low (L) severity** – scores of 0-2
- **High (H) severity** – scores of 3-4

<table>
<thead>
<tr>
<th>Severity description</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>no problem</td>
<td>0</td>
</tr>
<tr>
<td>minor problem requiring no action</td>
<td>1</td>
</tr>
<tr>
<td>mild problem but definitely present</td>
<td>2</td>
</tr>
<tr>
<td>moderately severe problem</td>
<td>3</td>
</tr>
<tr>
<td>severe to very severe problem</td>
<td>4</td>
</tr>
</tbody>
</table>

- **Low (L) severity**
- **High (H) severity**
Categorical Change

It gives a visual way of showing how many people have **improved** in a particular scale (‘high to low’), have **deteriorated** (‘low to high’) or have remained **unchanged** (‘high to high’ or ‘low to low’) on each scale, comparing first and last ratings.

- **High to High (HH)** – Unchanged
- **High to Low (HL)** – Improvement
- **Low to High (LH)** – Deterioration
- **Low to Low (LL)** – Unchanged

This example shows the string of HoNOS scores collected at two points for a patient. Each question is individually assessed for improvement.

**Example:** The scores for Scale 1 (Overactive, aggressive, disruptive or agitated behaviour) shows an ‘entry’ score of High and an ‘exit’ score of Low. When put together there has been an improvement in that area for this patient (HL).
How the data is presented

Categorical change has been developed based on feedback from staff looking at HoNOS data for the first time. It can be useful as it shows change in an easy to visualise format, and shows the dynamic nature of change.

The data can be visualised in a chart, as shown below:

Categorical change model by questions: Inpatient admission to inpatient discharge (aggregated scores)

<table>
<thead>
<tr>
<th>% of patients in each category (aggregated)</th>
<th>High to High (HH) – Unchanged</th>
<th>High to Low (HL) – Improvement</th>
<th>Low to High (LH) – Deterioration</th>
<th>Low to Low (LL) – Unchanged</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>6%</td>
<td>70%</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>02</td>
<td>17%</td>
<td>5%</td>
<td>11%</td>
<td>5%</td>
</tr>
<tr>
<td>03</td>
<td>17%</td>
<td>5%</td>
<td>11%</td>
<td>5%</td>
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<tr>
<td>04</td>
<td>1%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
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<tr>
<td>05</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>06</td>
<td>18%</td>
<td>13%</td>
<td>14%</td>
<td>10%</td>
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<tr>
<td>07</td>
<td>20%</td>
<td>26%</td>
<td>26%</td>
<td>26%</td>
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<tr>
<td>08</td>
<td>14%</td>
<td>10%</td>
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<td>09</td>
<td>10%</td>
<td>7%</td>
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<td>10</td>
<td>7%</td>
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<td>11</td>
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<tr>
<td>12</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
</tr>
</tbody>
</table>

HH – This is one to be curious about. If this is something which was a problem at the outset, could we have done more to help the person with it?

HL – This is one to be positive about. This shows people improving.

LH – This is one to be concerned about. Whilst this can sometimes be the case, a large number of people moving from low to high scores may need attention.
Setting a minimum score

Having a minimum cut off (i.e. removing LL scores) in a categorical change chart can help with looking at average HoNOS change in teams.

This can make it easier to focus on areas where meaningful change is taking place. The example below shows the same chart as before with the LL scores removed:
Next Steps

- Dissemination of HoNOS and DIALOG support materials via the Healthy London Partnership website
- Ongoing implementation support to Trusts
- Review of outcomes data to understand trends
- Explore digital solutions to reduce data administration burden on clinicians.

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