Guidance on the Administration to Adults of Oil-based Depot and other Long-Acting Intramuscular Antipsychotic Injections

5th Edition

June 2016

Janssen commissioned this guidance and also met its publication costs

PHGB/XEP/0616/0021

Date of Preparation: June 2016
For further details on dosing and injection of specific agents please refer to the prescribing information
Guidance on the Administration to Adults of Oil-based Depot and other Long-Acting Intramuscular Antipsychotic Injections

Appendix 1 of this document contains Six Standard Operating Procedures (SOPs) for the administration to adults of oil-based depot and other long-acting antipsychotic injections:

SOP 1. General Preparation for Deep Intramuscular (IM) Injection

SOP 2. Z-track Administration Technique

SOP 3. Deltoid Administration Technique

SOP 4. Dorsogluteal Administration Technique

SOP 5. Ventrogluteal Administration Technique

SOP 6. Vastus Lateralis and Rectus Femoris Administration Technique

This document may be downloaded from the following websites:

The University of Hull  www.hull.ac.uk/injectionguide
College of Mental Health Pharmacy  www.cmph.org.uk
“Reach 4 Resource”  www.reach4resource.co.uk

How to reference this document:

<table>
<thead>
<tr>
<th>Title</th>
<th>Guidance on the Administration to Adults of Oil-based Depot and other Long-Acting Intramuscular Antipsychotic Injections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Authors (listed alphabetically)</strong></td>
<td></td>
</tr>
<tr>
<td>Graham Alexander: RMN, PGDip, PhD, Non-medical prescribing lead, Worcestershire Mental Health Partnership NHS Trust</td>
<td></td>
</tr>
<tr>
<td>Kathleen Greenway: RGN, BSc (Hons), MA (Ed), Cert HE, Senior Lecturer in Adult Nursing, Oxford Brookes University</td>
<td></td>
</tr>
<tr>
<td>Alan Pollard: BSc (Pharm), MRPharmS, FCMHP, Chief Pharmacist, Worcestershire Mental Health Partnership NHS Trust</td>
<td></td>
</tr>
<tr>
<td>David Pratt: RMN, BSc, Clinical Governance Coordinator, Northumberland, Tyne and Wear NHS Trust</td>
<td></td>
</tr>
<tr>
<td>Susan Stocks: RN1, RN3, BSc (Hons), Advanced Professional Studies for Nurses, Senior Nurse Advisor for Patient Experience, Derbyshire Mental Health Services NHS Trust</td>
<td></td>
</tr>
<tr>
<td><strong>Review and Editing (listed alphabetically)</strong></td>
<td></td>
</tr>
<tr>
<td>Celia Feetam: B.Pharm (Hons), MSc. FRPharmS, FCMHP, Specialist Mental Health Pharmacist</td>
<td></td>
</tr>
<tr>
<td>Jacqui White: RMN, BSc (Hons), PGCert, PhD, Senior Lecturer Mental Health Nursing, Associate Dean Learning, Teaching and Quality, Faculty of Health and Social Care, University of Hull</td>
<td></td>
</tr>
<tr>
<td><strong>Target Audience</strong></td>
<td>Clinicians working for NHS and Independent Mental Health Service Providers</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>This document sets out evidence based guidance on the administration to adults of oil-based depot and other long-acting intramuscular antipsychotic injections which may be adopted by healthcare professionals as a framework for best practice</td>
</tr>
<tr>
<td><strong>1st Edition</strong></td>
<td>June 2009</td>
</tr>
<tr>
<td><strong>2nd Edition (revised)</strong></td>
<td>September 2010</td>
</tr>
<tr>
<td><strong>3rd Edition (revised)</strong></td>
<td>September 2011</td>
</tr>
<tr>
<td><strong>4th Edition (revised)</strong></td>
<td>February 2014</td>
</tr>
<tr>
<td><strong>5th Edition (revised)</strong></td>
<td>June 2016</td>
</tr>
</tbody>
</table>
This guidance was commissioned by Janssen-Cilag Ltd as part of an extensive programme of work to support practitioners in applying best practice to the administration of long-acting intramuscular antipsychotic injections. The document was generated without input from Janssen-Cilag Ltd and the company had no editorial control over the content.

The authors and editors would like to thank the wide range of advisory board members whose knowledge, skills, experience and expertise contributed significantly to the development of this guidance.

Disclaimer: Always refer to the most up to date information by consulting the latest published SPC.

Copyright
The copyright of Images 3b,3c, 4b, 4c, 4d, 5b, 5c, 6b, 6c belongs to Primal Pictures Ltd. Formal permission and licensing are required for any use or alteration of these images. Please go to www.primalpictures.com for more information and to contact Primal Pictures.
<table>
<thead>
<tr>
<th>Section</th>
<th>Contents</th>
<th>Page number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scope of this Guidance</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Guiding Principles</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Introduction and Background</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Oil-based Depot Injections: Test Dose Calculation</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>Other Long Acting Intramuscular Antipsychotic Injections</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>Advantages and Disadvantages of Long-Acting Antipsychotic Intramuscular Injections</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>Safer Care through Risk Management</td>
<td>14</td>
</tr>
<tr>
<td>8</td>
<td>The Patient Experience</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>Patient Choice &amp; Shared Decision Making</td>
<td>17</td>
</tr>
<tr>
<td>10</td>
<td>Switching Antipsychotics</td>
<td>18</td>
</tr>
<tr>
<td>11</td>
<td>Consent to Treatment:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>England &amp; Wales</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Scotland</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>N. Ireland</td>
<td>21</td>
</tr>
<tr>
<td>12</td>
<td>Patient Preparation</td>
<td>22</td>
</tr>
<tr>
<td>13</td>
<td>Imminent Clinical Preparation for the Procedure</td>
<td>23</td>
</tr>
<tr>
<td>14</td>
<td>Choice of Syringe and Needle</td>
<td>24</td>
</tr>
<tr>
<td>15</td>
<td>Prevention and Control of Infection and Prevention of Inoculation Injury</td>
<td>26</td>
</tr>
<tr>
<td>16</td>
<td>Choice of Injection Site</td>
<td>27</td>
</tr>
<tr>
<td>17</td>
<td>Deep Intramuscular Administration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Table: Injection sites</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>Table: Maximum volume for oil-based depot administration into a single site</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>18</td>
<td>Record Keeping</td>
<td>31</td>
</tr>
<tr>
<td>19</td>
<td>Monitoring and Evaluation of Treatment</td>
<td>32</td>
</tr>
<tr>
<td>20</td>
<td>Clinical Outcome Indicators and Audit</td>
<td>33</td>
</tr>
<tr>
<td>21</td>
<td>Training</td>
<td>34</td>
</tr>
<tr>
<td>22</td>
<td>Glossary of Terms</td>
<td>35</td>
</tr>
<tr>
<td>23</td>
<td>Additional reading</td>
<td>37</td>
</tr>
<tr>
<td>24</td>
<td>Appendices</td>
<td>39</td>
</tr>
<tr>
<td>25</td>
<td>References</td>
<td>69</td>
</tr>
<tr>
<td>A1</td>
<td>SOP 1: General Preparation for Deep Intramuscular (IM) Injection</td>
<td>41</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td>Diagram: Z-Track Administration Technique</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>SOP 2: Z-Track Administration Technique</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>Diagram: Administration Technique for the Deltoid site</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>SOP 3: Administration Technique for the Deltoid site</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Diagram: Administration Technique for the Dorsogluteal Site</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>SOP 4: Administration Technique for the Dorsogluteal Site</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>Diagram: Administration Technique for the Ventrogluteal Site</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>SOP 5: Administration Technique for the Ventrogluteal Site</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Diagram: Administration Technique for the Vastus Lateralis and Diagram Rectus Femoris Sites</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>SOP 6: Administration Technique for the Vastus Lateralis and Rectus Femoris Sites</td>
<td>51</td>
</tr>
<tr>
<td>A2</td>
<td>Appendix 2: Oil-based Depot and Other Long-Acting Injections available</td>
<td>52</td>
</tr>
<tr>
<td>A3</td>
<td>Appendix 3: Dose, dosing interval and approximate chlorpromazine equivalents of depot antipsychotic intramuscular injections</td>
<td>54</td>
</tr>
<tr>
<td>A4</td>
<td>Appendix 4: Dose Calculation Workbook</td>
<td>57</td>
</tr>
<tr>
<td>A5</td>
<td>Appendix 5: Questions you might like to ask your Health Care Professional</td>
<td>60</td>
</tr>
<tr>
<td>A6</td>
<td>Appendix 6: Human Factor Error Risk Reduction Checklist Template</td>
<td>61</td>
</tr>
<tr>
<td>A7</td>
<td>Appendix 7: Injection Audit Tool</td>
<td>63</td>
</tr>
</tbody>
</table>
1.1 Injection technique is traditionally based on practice which is underpinned by evidence from expert opinion and clinical experience. It is then disseminated by modelling the technique to subsequent generations of clinicians. This is a much lower level of evidence than that normally required to demonstrate the efficacy of an intervention or technique such as by a randomised controlled trial (RCT). The best quality evidence is obtained from primary research where rigorous methodological and ethical standards are applied to confirm or refute cause and effect. Within primary research the level of evidence varies from well conducted and adequately powered RCTs to evidence from uncontrolled (naturalistic or observational) studies and/or published case reports or series. This guidance has been produced following an extensive and systematic review of the literature and provides references to the primary research where this is available. There is, however, a paucity of good quality evidence for some of the issues considered and where this is the case this is reflected in the guidance.

1.2 This guidance is to provide a flexible framework within which clinicians working for mental health service providers in the UK may consider their own clinical policies; it supports how these may be adapted locally to further enhance the safe administration of oil-based depot and other long-acting intramuscular antipsychotic injections.

1.3 This guidance takes into account the requirement of the Care Quality Commission for clinicians to continue to provide evidence of safe practice in the care of their patients.¹

1.4 This guidance provides a framework for clinical quality standards in harmony with the provision of information for the National Health Service Litigation Authority² the Care Quality Commission¹ and the pledges made by the NHS Constitution.³

1.5 The framework is intended to enhance governance arrangements for upholding the professional code of practice of the Nursing and Midwifery Council (NMC)⁴ and the NMC Standards for Medicines Management ⁵ together with recommendations from the National Patient Safety Agency (NPSA).⁶

1.6 This guidance is intended to support culture change for safer patient care by providing information on service improvement that can be harnessed and used collectively in a coordinated way by organisations. It can be used as a catalyst for nurse leaders to inspire, prepare and equip nurses with defined technical skills and competencies for the procedure.
2. Guiding Principles

This document is underpinned by the following principles:-

2.1 The need for clinical competence in order to reduce the risks associated with human error and provide safe care through systematic and meticulous practice.

2.2 The requirement for a clinically driven national resource derived from the current evidence base to support local practitioners. This includes adherence to the principles of guidance from the NPSA, now the NHS Commissioning Board Special Health Authority.\(^6\)

2.3 The opportunity to offer the experienced practitioner a flexible framework within which they may make appropriate clinical judgments.

2.4 The need to manage the care of those with long term conditions appropriately

2.5 The requirement to provide information that is accessible to patients and carers as well as to clinicians.

2.6 The need to contribute to enhanced treatment choice, and the right of an individual to be offered a choice of antipsychotic and its formulation where alternatives exist.

2.7 The recognition of an individual's right to be offered a choice of injection site for the administration of a long-acting intramuscular antipsychotic injection where the license permits.

2.8 The need to influence public perception and diminish notions of coercion and stigma associated with the use of such injections particularly in the context of mental health legislation

2.9 The necessity to preserve the dignity of and respect for the patient by the promotion of good practice in the administration of oil-based depot and other long-acting intramuscular antipsychotic injections.
3. Introduction and Background

3.1 Oil-based depot and other long-acting intramuscular antipsychotic injections are key interventions for a significant number of people in the recovery phase of a severe and enduring mental illness such as schizophrenia.\textsuperscript{7} In 2009 it was reported that between 29% and 30% of patients with schizophrenia in the UK were prescribed a long acting injectable antipsychotic.\textsuperscript{8}

3.2 Long-acting antipsychotic injections should be considered for people with psychosis or schizophrenia who would prefer such a formulation after an acute episode or where avoiding covert non-adherence (either intentional or unintentional) to oral antipsychotic medicines is a clinical priority within the treatment plan.\textsuperscript{7}

3.3 First generation (typical) antipsychotics are more often associated with extrapyramidal side-effects and a higher risk of tardive dyskinesia than second generation (atypical) antipsychotics.\textsuperscript{7} This risk of adverse effects and the associated stigma have previously influenced treatment choice in favor of an oral second generation rather than a long acting first generation formulation. The availability of long-acting intramuscular second generation antipsychotic injections now means that choosing a long-acting intramuscular formulation does not automatically mean treatment with a first generation antipsychotic.

3.4 Medicines optimisation is an individualised person-centred approach to the use of medicines that involves engaging with patients to get their medicines right for them. It ensures the best possible outcomes by minimising risk and maximising benefit using evidence-based decision making. It requires effective patient engagement and professional collaboration.\textsuperscript{9} The treatment of schizophrenia may be optimised by

- offering a choice of treatments\textsuperscript{7}
- prescribing an effective, optimum dose for an appropriate period of time before considering a dose change or switch\textsuperscript{7}
- providing adherence support regularly and frequently\textsuperscript{7}
- offering a long acting injectable antipsychotic\textsuperscript{7}
- ensuring physical health is not compromised further.\textsuperscript{7}

3.5 The safe administration of oil-based depot and other long-acting intramuscular antipsychotic injections is an integral part of the work of registered practitioners in mental health and errors can be minimised through the application of a framework such as this guidance provides, that identifies the technical competency required for all aspects of the procedure.
4. Oil-based Depot Injections: Test Dose Calculation

4.1 Oil-based depot antipsychotic injections are all licensed to be given by deep intramuscular injection into the gluteal muscle at intervals of one to four weeks. Some (flupentixol and zuclopenthixol*) are also licensed to be given into the lateral thigh (vastus lateralis) (see appendix 2). They all have a similar licensed indication, which is for the maintenance treatment of schizophrenia and other psychoses.\(^{10,11}\)

4.2 For these oil-based depot antipsychotic injections, a small test dose of the injection must be given before the full treatment schedule is initiated. This is to confirm tolerability to both the active ingredient as well as the oily vehicle, since any adverse effect will be prolonged.\(^{10,11}\)

4.3 Full details of test doses for the oil-based depot injections are given in each individual Summary of Product Characteristics (SmPC)\(^ {10}\) and in the British National Formulary (BNF).\(^ {11}\) Treatment may normally be initiated four to seven days after a successful test dose.\(^ {10, 11}\)

4.4 A calculation may be necessary to work out the injection volume required for a test dose.

**Example:** The test dose of fluphenazine decanoate for an adult is 12.5mg.\(^ {12}\) The smallest dose/volume available of fluphenazine decanoate is 0.5ml ampoules containing 12.5mg in 0.5 ml. The test dose for an adult is therefore 0.5ml. If, however, only the 25mg in 1ml ampoule was available, the test dose would be 25mg (1ml) divided by 2 which equates to 0.5ml of the 25mg in 1ml strength.

See Appendix 4: Dose Calculation Workbook

*See prescribing information for further details on both named products*
5. **Other Long Acting Intramuscular Antipsychotic Injections**

5.1 **Aripiprazole long acting injection**\(^{13}\) is licensed for the maintenance treatment of schizophrenia in adults stabilised with oral aripiprazole. It is presented as a polymer of aripiprazole monohydrate, a dry powder for reconstitution and suspension in the solvent supplied (water for injection). Separate vials containing the 300mg and 400mg doses are available. Pre-filled syringes are also available to save reconstitution.

Aripiprazole long acting injection may be injected into either the gluteal or the deltoid muscle from where the active moiety is slowly released into the circulation. Maximum concentration is achieved in 5 to 7 days. Doses must not be divided; the suspension should be injected slowly as a single injection. The elimination half-life is 29.9 days for a 300mg dose and 46.5 days for a 400mg dose when administered monthly as recommended. Steady state is attained by the fourth injection. It should be stored at room temperature. Tolerability to oral aripiprazole should be established prior to initiating the injection in any patient naïve to aripiprazole.

The recommended starting and maintenance dose is 400 mg. Initial dose titration is not required. It should be administered once monthly as a single injection (no sooner than 26 days after the previous injection). After the first injection, treatment with 10 mg to 20 mg oral aripiprazole should be continued for 14 consecutive days to maintain therapeutic aripiprazole concentrations during initiation of therapy. If there are adverse reactions with the 400 mg dosage, a reduction to 300 mg once monthly should be considered.

5.2 **Olanzapine long acting injection**\(^{14}\) consists of olanzapine pamoate monohydrate powder together with a solvent which when combined form a prolonged release suspension for deep intramuscular gluteal injection. Vials containing 201mg, 300mg and 405mg of the pamoate are available which when reconstituted as directed contain 150mg olanzapine per ml. Whilst a test dose is not required, patients should have been successfully treated with oral olanzapine before receiving the long-acting injection in order to establish tolerability and response. The release characteristics of olanzapine long-acting injection are not dissimilar to those of the first generation oil-based depots. There is an early initial release of active antipsychotic after administration. This is in contrast to risperidone long-acting injection. (See Section 5.3)

After each injection, patients must be observed for post injection syndrome (signs and symptoms consistent with olanzapine overdose) in a healthcare facility by appropriately qualified personnel for at least 3 hours. (See the SmPC for full details).

5.3 **Paliperidone palmitate**\(^{15}\) is the palmitate ester of paliperidone formulated as nanoparticles suspended in an aqueous solution. These nanoparticles dissolve very slowly from the injection site before being hydrolysed to paliperidone and absorbed into the systemic circulation. This extended period of time for release allows for monthly dosing. Release of the active substance starts as early as day 1, peaks at day 14 and lasts for at least 4 months.

Paliperidone palmitate is licensed for the maintenance treatment of schizophrenia in adult patients stabilised with oral paliperidone or risperidone. It may also be used in patients who are not currently on risperidone or paliperidone but who have responded to them in the past (as long as they are not acutely agitated and only have mild to moderate psychotic symptoms). This latter part of the license allows the use of paliperidone palmitate in selected patients in the acute setting. A test dose is not required but response and tolerability to either oral risperidone or paliperidone must
have been established prior to commencing treatment.

Paliperidone palmitate is available in five dose strengths, 25mg/ml, 50mg/ml, 75mg/ml, 100mg/ml and 150mg/ml all presented in prefilled syringes. To attain therapeutic plasma levels as rapidly as possible, the first two doses must be administered into the deltoid muscle 7 days apart (+/- 4 days). Following this initial titration period, monthly dosing should commence using either the deltoid or dorsogluteal site. There are special requirements regarding needle selection from the pack for deltoid injection in patients who weigh ≥ 90Kg (see section 12.9).

Paliperidone palmitate is now available as a 3-monthly injection. It is indicated for the maintenance treatment of schizophrenia in adult patients who have been clinically stable on 1 monthly paliperidone palmitate long acting injection, preferably for four months or more and who do not require dose adjustment. This allows selected patients to maintain an optimal level of treatment in their blood with fewer administrations. It is available in prefilled syringes containing 175mg, 263mg, 350 mg or 525 mg prolonged release suspension of paliperidone for injection.

This three monthly injection should be initiated in place of the next scheduled dose of 1-monthly paliperidone palmitate long acting injection. The dose should be based on the previous 1-monthly paliperidone dose using a 3.5 fold higher dose. A dosing table is available in the SmPC.

Following initiation it should be administered by intramuscular injection once every 3 months (± 2 weeks). If needed, dose adjustment can be made every 3 months in increments within the range of 175mg to 525mg based on individual patient tolerability and/or efficacy. Due to the long-acting nature of this formulation, the patient’s response to an adjusted dose may not be apparent for several months. If the patient remains symptomatic, they should be managed according to clinical practice.

5.4 Risperidone long acting injection (RLAI) consists of risperidone encapsulated in microspheres of a biodegradable polymer which after reconstitution are suspended in an aqueous vehicle. Vials are available containing 25mg, 37.5mg and 50mg risperidone. It is licensed for the maintenance treatment of schizophrenia in patients currently stabilised with oral antipsychotics.

A test dose is not required. Instead, response and tolerability should normally be confirmed by a previous course of oral risperidone. In those patients who have already demonstrated a response to risperidone, the effective oral dose is used as a guide to the initial intramuscular dose.

Note: Therapeutic plasma levels of risperidone will not normally be achieved until four or five weeks after the first injection. This means that it will not begin to exert a significant clinical effect before the third injection has been given. Patients should, if possible, continue to take oral risperidone (or in exceptional cases their previous oral antipsychotic) for at least three weeks after receiving the first dose of risperidone long acting injection. This also means that at least three injections of a particular dose must be given before increasing that dose. This contrasts with traditional depots where peak plasma levels are achieved between three and five days following the first administration.

5.5 Refer to the most up to date information by consulting the latest published SmPC at www.medicines.org for each individual antipsychotic formulation.
6.1 Premature discontinuation of oral antipsychotics is common in patients with schizophrenia and is a frequent cause of relapse. Long-acting oil based depot intramuscular antipsychotic injections were originally developed to improve and support treatment adherence and reduce the relapse rate in this population.

6.2 Advantages of depot and other long acting antipsychotic injections from a healthcare professional's perspective include:

- Reduced necessity for tablets or capsules to be taken on a daily basis.
- Reduced uncertainty about the amount of medicine taken or not taken.
- No influence of first-pass metabolism thus improved bioavailability.
- More consistent delivery of antipsychotic with more stable plasma levels over time which can minimise side-effects and reduce variations in symptom control.
- A wider window of opportunity to re-engage assertively with a patient if they refuse an injection as plasma levels take longer to decline after the last dose than with oral formulations.
- Earlier detection of non-adherence which can be followed up quickly resulting in potentially reduced relapse rates leading to better outcomes.
- Possibly reduced risk of admission with potential resultant cost savings.
- Potentially reduced need for repeat prescriptions since the dosing interval of such formulations are normally between one and four weeks. This may also lead to cost savings.
- Reduced risk of accidental or deliberate self harm through overdose.
- The potential to enhance the therapeutic relationship and partnership working with the patient and their carer (if appropriate) by the regular frequent contact required.

6.3 Disadvantages of depot and other long acting antipsychotic injections from a healthcare professional's perspective include:

- Pain, erythema, swelling at the site of injection as well as nodule formation particularly with oil-based injections.
- Risk of damage to nerves, arteries or veins.
- If side-effects occur they will be prolonged until the plasma level falls.
- There may be an allergy to an oily vehicle; hence the necessity for a test dose of the oil-based depot formulations.
- The need to confirm efficacy and tolerability to the oral formulations of the non-oil based long-acting injections where required and practical.
- It can take several weeks for plasma levels to reach steady state.
- Injection technique competence, assessment and training are required.
- Potential logistical difficulties which may arise from the need to administer an injection to a patient who is in employment.
- The requirement to attend a traditional ‘depot clinic’ may be considered stigmatising by some but research has highlighted the opposite may be true with patients valuing contact with other patients and staff as well as the medication management interventions available to them there.
- Some people have a dislike or even a phobia of needles.
- Social embarrassment and the need for chaperoning and gender matching.
- Staffing and medicine storage issues.
- The fact that depot injections have been viewed by some as stigmatising and coercive.
6.4 Healthcare professionals’ perceptions of the advantages and disadvantages of these formulations may differ from those of patients. When considering the choice of treatment patient opinion should be sought and taken into account. 20,21

6.5 Advantages of depot and other long acting injections from a patient perspective:
- You don't have to remember to take your medicines every day
- You don't have to worry about family members and others reminding you about your medicines
- You don't have to worry about accidentally forgetting to take your medicine
- Injections may be a better way than tablets or capsules of ensuring that you get the medicines you need to keep you well
- Tablets and capsules can serve as a daily reminder that "You are ill". Injections can be given every 1-6 weeks and allow you more freedom to get on with your life and put your illness behind you
- Injection clinics can be a source of social interaction for some people - and there may also be educational material available there
- If you forget to go for your injection, someone will remind you
- You may have fewer side effects with an injection (because the levels in the blood don't go up and down so much)
- You don't have to remember take your medicines with you if you go away for a short holiday.

6.6 Advantages of depot and other long acting injections from a patient perspective:
- Some people don't like needles
- You have to expose your buttocks, thigh, or shoulder - this may be embarrassing
- You may have to wait around until the nurse finds a chaperone
- The injection might be painful and the injection site sore afterwards
- Some people develop nodules or boils at the site of the injection
- Some people can get nerve damage if the injection is given badly or at the wrong site
  - by mistake
- If you do develop side effects, they may persist for several weeks after the injection is stopped
- Some people feel that having the injection stigmatises them or that they are being forced to have the treatment against their will

6.7 High quality evidence to support a positive effect of long–acting injectable antipsychotic formulations on adherence and the prevention of relapse is sparse. Only a small benefit over oral therapy has been demonstrated in randomized controlled trials. One of the problems may be that clinical trial design investigating this area is inappropriate and creates a bias against the long acting injectable formulation. In a recent systematic review and meta-analysis of long-term studies however, long acting injectable antipsychotics reduced relapse rates of outpatients with schizophrenia from an average of 33.2% to 21.5%. This represents a 10% absolute and a 30% relative risk reduction of the relapse risk.24

A nationwide cohort study from Finland also concluded that the use of long acting formulations was associated with a significantly lower risk of re-hospitalization than oral formulations of the same antipsychotic.25 This was a “mirror image study” and a subsequent metanalyses of similar studies confirmed that long acting antipsychotic injections reduce both the risk of hospital admission as well as the number of admissions compared to oral antipsychotics.26

Furthermore not only are relapses in schizophrenia costly, relapse duration and treatment intensity have been associated with tissue loss in some brain regions together with changes in ventricular volume.27
7. Safer Care through Risk Management

7.1 Patient safety is always the highest priority.

7.2 There is a body of evidence that demonstrates the contribution of human factors as well as system failures to patient harm. This guidance is designed to minimise the risk of human error through the encouragement of systematic, safe practice.

7.3 When an injection is to be given it is best practice to have a second registered practitioner available to double check at every stage of the procedure. However, this is not always possible in a community setting. In such circumstances, it would be deemed good practice for the patient or carer if appropriate to act as second checker with a record of this in the clinical notes.

7.4 If at any time a registered practitioner has any concerns during a double check, the procedure must be stopped and a review must take place in discussion with the second check registered practitioner.

7.5 All untoward events, including where a patient experiences an adverse event associated with a specific product, must be reported and recorded in accordance with the local risk management and untoward incident reporting procedures. Local policy will determine how all such untoward events are reported and this will include using the Yellow Card system.

7.6 A registered practitioner who is undertaking the administration of a depot or other long-acting intramuscular antipsychotic injection must have:

- knowledge and understanding of the legislation, regulation and guidance applicable to the procedure.
- knowledge of the therapeutic use, normal dosage, side effects, precautions and contra-indications of the injection being administered.
- competence in the technical performance of the procedure to ensure nothing is overlooked during the preparation, administration and following the procedure.
- an individual responsibility to keep knowledge and skills up to date and only work within the limits of their competence.
- the ability to apply a human factor risk reduction methodology to their practice to minimise any harm to the patient before, during and after the procedure.
- compassion and respect for the patient and they must pay attention to their dignity.

7.7 During transit of certain injections, material may accumulate in the top or bottom of an ampoule. This can be dislodged by gently tapping it before opening or by holding the top of the ampoule and swinging the arm in a large arc.

Caution must be exercised when opening glass ampoules. There are two main types of ampoule:

- Spot ampoules - always break away from the spot
- Ring cut ampoules - can be broken in any direction

See the diagrams on the following page.
The technique for opening each of these is shown below.

Figure 1

Ring cut ampoules are more likely to shatter than spot ampoules. Historically spot ampoule technology preceded ring cut technology but manufacturers are returning to it.
8. The Patient Experience

8.1 Registered practitioners have a responsibility to consider the potential stigma associated with the diagnosis and treatment of a mental illness. They should provide information to support the patient and their carers and encourage them, together with the general public, to engender a positive, balanced attitude. The environment in which it is planned to administer the medicine and exchange information can influence the perception of a good patient experience.²⁹, ³⁰

8.2 An oil-based depot or other long-acting antipsychotic injection should be offered to anyone who expresses a preference for such a formulation even after an acute episode or when the need to avoid covert non-adherence (either intentional or unintentional) is a clinical priority.⁷,

8.3 The choice and formulation of antipsychotic should be a joint decision between the patient and their clinician taking into consideration the risks and benefits of the treatment including the relative potential of individual antipsychotics to cause side-effects such as extrapyramidal side effects (EPS) and metabolic side-effects, including weight gain.⁷,

8.4 When starting an oil-based depot or other long-acting intramuscular antipsychotic injection the preferences and attitude of the patient towards regular intramuscular injections and the intended environment for such administration, for example in the home or the location of clinics, must be considered and recorded.⁷,

8.5 Where, according to the product license, a choice of injection site exists, the patient should, if possible, be offered that choice. The risks and benefits of each potential administration site should be discussed compassionately with the patient with particular reference to dignity issues and the environment in which the administration will take place. The practitioner may like to discuss some or all of the following with the patient.
- They may not have to take off as much clothing which may be less embarrassing, more respectful, less anxiety-provoking especially if they have sexual delusions or where cultural and/or religious issues must be considered
- They may not have to worry so much about what to wear to have the injection.
- They may find it easier to talk to the doctor or nurse if they don't have to expose themselves
- Where a choice of injection site exists, offering that choice may improve trust and thus the therapeutic relationship
- A choice of site allows for more extensive rotation, therefore more time for recovery of the site between injections and fewer long-term injection site complications
- Some injection sites may be less stigmatising than others
- There may be more potential for face to face contact with their nurse and the whole process may be less impersonal
- Such choice may help to improve adherence
- Many injections are given via routes other than the dorsogluteal and by making the process more akin to a general medical process; the stigma associated with antipsychotic injections may be reduced.

8.6 The availability of three long-acting intramuscular antipsychotic injections licensed to be given at the deltoid site (risperidone, paliperidone and aripiprazole) requires both confidence and competence on the part of the registered practitioner to describe this choice to the patient and if it is their first administration, confidence on the part of patient in accepting treatment in this manner.
9. Patient Choice & Shared Decision Making

9.1 Choice is about the power to make decisions; it gives people more control over their lives. Decisions can be made entirely by another person or a team which can be appropriate if no decision places the individual or others at risk, or if the patient requests others to make the decision for them. Sometimes people prefer decisions to be made by those they perceive to be more knowledgeable than they are.

9.2 In contrast a shared decision is where the healthcare professional (and/or team) and the individual patient pool their knowledge and understanding of what is needed together to allow them to come to a joint decision. In this situation the decision follows an exchange of information where all viewpoints are expressed, listened to and respected, questions are answered and additional information sought and provided where required.

9.3 The patient must be able to consider and weigh-up the information provided in order to arrive at a decision as to whether or not to proceed with an oil-based depot or another long-acting antipsychotic injection and they must be able to retain the key points of any discussion with the registered practitioner and communicate this decision back to them.

9.4 There are many factors that the patient will wish to consider and all of these should be thoroughly explored in a person centered manner with the clinical team together with the legal responsibilities that registered practitioners have in England and Wales in accordance with the Mental Health Act 2007\(^{31}\) and Mental Capacity Act 2005 \(^{32}\), and in Scotland in accordance with the Mental Health (Care and Treatment) (Scotland) Act 2003 \(^{33}\) as well as the Adults with Incapacity (Scotland) Act 2000 \(^{34}\) and in Northern Ireland in line with any relevant legislative and good practice guidance.

9.5 Patient choice may be facilitated by accessing the Choice and Medication website via your organisation’s subscription at: [http://www.choiceandmedication.org.uk](http://www.choiceandmedication.org.uk). As well as a series of “frequently asked questions” about mental illnesses and their treatment there are “handy charts” to enable comparison of treatments including oil-based depots and other long-acting intramuscular antipsychotic injections. This site is designed for use by patients, carers and professionals alike.

9.6 This process of coming to a shared decision is also called concordance, in contrast to adherence that is (medicine taking) behaviour.\(^{35}\) Pragmatic models and frameworks to support the shared decision making process include the Elicit-Provide-Elicit model \(^{36}\) and the Shared Decision Making Competency Framework.\(^{37}\)
10. Switching Antipsychotics

10.1 Not infrequently it is deemed appropriate to change or switch an antipsychotic in order to achieve a better outcome for an individual patient. This may be due to lack of efficacy, intolerable side-effects, poor adherence, physical health issues or patient choice.

10.2 Such a switch may be between oral antipsychotics, long acting injectable or from an oral to a long acting injectable formulation or vice versa.

10.3 Key objectives when switching antipsychotics include the need to minimise risk to mental stability as well as any possible adverse effects. All potential problems should be anticipated and detailed in a comprehensive management plan. Most importantly the switch must be completed to avoid unnecessary polypharmacy.

10.4 The pharmacokinetic and pharmacodynamics profiles of both antipsychotics involved must inform the switching strategy. This will enable successful titration and dosing by allowing the prediction and thus avoidance of possible problems such as adverse effects or withdrawal symptoms.

10.5 Differences in elimination half-lives and peak plasma concentrations lead to different plasma profiles. The elimination half-life of an antipsychotic normally determines its dosing regimen. It is the time taken for the plasma concentration to fall by half its original value. For oral formulations it takes approximately five half-lives to reach steady state. It takes the same time for an oral antipsychotic to disappear from the plasma when it is discontinued at steady state.

10.6 Such information together with knowledge of the respective receptor affinities allows the prediction of therapeutic effects plus withdrawal and rebound effects which can occur during discontinuation and switching especially if the new antipsychotic does not share the same receptor profile and affinity with the first.

10.7 A specific switching strategy based on such knowledge can enhance effectiveness and avoid undesirable effects. There are at least eight different possible strategies for switching oral antipsychotics.38

10.8 Due to the various techniques employed to produce a long acting injectable formulation the time to steady state cannot be calculated as five half-lives with the second generation long acting antipsychotic injections as with oral formulations. Their pharmacokinetic parameters together with specific switching strategies may be found in each individual SmPC10 and the Maudsley Guidelines39.

10.9 Whenever possible a specialist mental health pharmacist should be enlisted to assist in drawing up a management plan with an appropriate switching strategy.
11. Consent to Treatment: England and Wales

11.1 Assessment of capacity to consent is a critical part of preparation for the procedure and must be consistent with guidance in the Mental Capacity Act Best Practice Tool, from the Care Quality Commission, the Mental Health Act 2007, and the Mental Capacity Act 2005. Practitioners need to be especially familiar with Part 4 of the Mental Health Act 2007 relating to consent to treatment and Part 4a relating to the treatment of community patients not recalled to hospital.

11.2 The registered practitioner caring for the patient may presume that the patient has the capacity to consent to treatment unless they are assessed as lacking that capacity. If there is any doubt about the capacity of the patient, then a documented assessment must be undertaken and the injection must not be given until this is clarified.

11.3 Obtaining consent from a patient is a complex process and must take into consideration the patient’s ability to understand information about oil-based depot and other long-acting intramuscular antipsychotic injections, their routes of administration as well as the risks and benefits of such treatments.

11.4 The process of consent must not involve coercion of the patient to agree to treatment and on this basis it is essential to promote practice that is in accordance with the Mental Health Act 2007 and the Mental Capacity Act 2005.

11.5 For any patient detained under any of the Mental Health Act sections 4, 5(2), 5(4), 35, 135,136, 37(4) or 45A, consent to treatment provisions, as defined in part 4, do not apply and they are in the same legal position as patients who are not subject to the Mental Health Act 2007. This means that they can refuse treatment. Part 4 similarly does not apply to patients who are conditionally discharged under Sections 42(2), 73 and 74 of the Mental Health Act 2007 and have not been recalled to hospital.

11.6 Consent to treatment provision under Part 4 applies to patients who are detained under Section 2, 3, 36, 37 (except 37(4)), 38, 44, 45A, 47, and 48. Patients who are on a Supervised Community Treatment Order (CTO) cannot be compelled to accept treatment they absolutely refuse unless they are recalled to hospital and their section 3 re-instated. This means that the registered practitioner has to make sure that they are legally entitled to administer medication and that the appropriate Mental Health Act documentation is completed accurately and, in the case of medication received for at least 3 months, form T3 is available with the prescription/administration card.

11.7 Section 62 of the Mental Health Act 2007 allows for the emergency treatment of a detained patient whatever section they are on, providing it is necessary to save life or prevent serious harm. The treatment should be non-hazardous and not have irreversible effects. Rapid tranquillisation with the use of short-acting intramuscular antipsychotics may feature here but the initiation of oil based depot or other long-acting intramuscular antipsychotics cannot be justified under Section 62 provisions.
11. Consent to Treatment: Scotland

11.1/S Assessment of capacity to consent is a critical part of preparation for the procedure and must be consistent with the Mental Health (Care and Treatment) (Scotland) Act 2003 and its Code of Practice, Consent to Treatment Guidelines of the Mental Welfare Commission for Scotland, and the Adults With Incapacity (Scotland) Act 2000 along with its Code of Practice. Practitioners need to be especially familiar with Part 16 of the Mental Health (Care & Treatment) (Scotland) Act 2003 relating to safeguards on medical treatments.

11.2/S The law of Scotland generally presumes that adults are capable of making decisions for themselves. That presumption can be overturned in relation to particular matters or decisions on evidence of impaired capacity. If in doubt, a documented assessment must take place first.

11.3/S Obtaining consent from a patient is a complex process and must take into consideration the patient’s ability to understand information about oil-based depot and other long-acting intramuscular antipsychotic injections, their routes of administration, as well as the risks and benefits of such treatment.

11.4/S The process of consent must not involve coercion of the patient to agree to treatment and on this basis it is essential to promote practice that is in accordance with the Mental Health (Care and Treatment) (Scotland) Act 2003 and the Adults With Incapacity (Scotland) Act 2000.

11.5/S Under Part 16 of the Mental Health (Care and Treatment) (Scotland) Act 2003, treatment can be given for the first 2 months from the first date of treatment as part of a Compulsory Treatment Order or an Interim Compulsory Treatment Order. After 2 months specific safeguards are activated. Under Section 238 of Part 16 of the 2003 Act, where a patient is capable of consenting and consents, then the patient’s Responsible Medical Officer is required to certify that the necessary conditions are met using a T2 form. Under Section 241 of Part 16 of the Mental Health (Care and Treatment) (Scotland) Act 2003, where the patient is incapable of consenting or does not consent, then a Designated Medical Practitioner can authorise treatment using a T3 form only if the necessary conditions are met.

11.6/S Under Section 112 of the Mental Health (Care & Treatment) (Scotland) Act 2003, a patient on a Compulsory Treatment Order or an Interim Compulsory Treatment Order which imposes an attendance requirement with a view to receiving treatment who fails to comply with the attendance requirement can be compelled to attend any hospital or the required place of attendance and detained there for no more than 6 hours. However, treatment cannot be forced out- side of a hospital setting. Under Section 113 of the Mental Health (Care and Treatment) (Scotland) Act 2003 if a patient is subject to a Compulsory Treatment Order or an Interim Compulsory Treatment Order which does not authorise detention in hospital and the patient fails to comply with any measure specified in the treatment order and it is a matter of urgency then the patient may be taken into hospital for a period of up to 72 hours.

11.7/S In Scotland a patient cannot be treated under Part 16 of the Mental Health (Care & Treatment) (Scotland) Act 2003 under a Section 36 Emergency Detention Certificate without their consent unless the need for treatment is urgent, as per Section 243 of the Mental Health (Care & Treatment) (Scotland) Act 2003. Rapid tranquillisation with the use of a short-acting intramuscular antipsychotic may feature here but the initiation of an oil-based depot or other long-acting intramuscular antipsychotic could not be justified.
11. Consent to Treatment: Northern Ireland

11.1/NI Assessment of capacity to consent is a critical part of preparation for the procedure and must be consistent with practice guidelines from the General Medical Council,45 the Nursing and Midwifery Council,5 the Northern Ireland Social Care Council 46 and the Regulation and Quality Improvement Authority. 47

11.2/NI The registered practitioner caring for the patient may presume the patient has the capacity to consent to treatment; however if there is any doubt about the capacity of the patient, then a documented assessment must be undertaken and the treatment not given until this is clarified.

11.3/NI Obtaining consent from a patient is a complex process and must take into consideration the patient’s ability to understand information about oil-based depot and other long-acting intramuscular antipsychotic injections, their routes of administration as well as the risks and benefits of such treatments.

11.4/NI The process of consent must not involve coercion of the patient to agree to treatment and on this basis it is essential to promote practice that is in accordance with the Mental Health (Northern Ireland) Order 1986 48 and good professional practice guidelines.

11.5/NI Patients admitted for assessment under the Mental Health (Northern Ireland) Order 1986 48 can still refuse treatment during the assessment period (i.e. if they are on forms 5, 7, 8 or 9) but not once they are detained for treatment. Once detained, a course of medicines for mental disorder can be given for up to 3 months without consent or need for an independent medical opinion. The patient must be made aware of their right to appeal detention under the Mental Health Order.

11.6/NI After 3 months have elapsed from the start of medical treatment then either forms 22 or 23 need to be completed for treatment to proceed. This requires that a doctor (as stipulated in Part IV of the Order) certifies that either the patient is capable of giving valid consent and does so or that the patient either lacks capacity to consent or has not given consent but the treatment should proceed for the therapeutic needs of the patient.

11.7/NI Article 68 of the Mental Health (NI) Order 1986 48 allows for the urgent treatment of a detained patient providing it is necessary to save life or prevent a serious deterioration in the condition of the patient or serious suffering by the patient. Rapid tranquilisation with the use of a short acting intramuscular antipsychotic or benzodiazepine may feature here but the initiation of long acting intramuscular antipsychotic formulations is unlikely to be justified under this provision.

11.8/NI As yet Northern Ireland has no equivalent to England’s Mental Capacity Act 2005 34 or Scotland’s Adults with Incapacity Act 2000.44 Therefore, where there is doubt over the capacity of the patient to give consent, reference must be made to good professional practice guidelines and to common law. Patients are assumed to have capacity unless or until it is shown otherwise. If there is doubt then it must be examined in more detail. To demonstrate capacity for a particular decision a patient must be able:

- To understand and retain information given to them (about the medicines, in this case)
- To consider the information, show understanding of the consequences of their choice and communicate their decision.

11.9/NI All patients can withdraw consent at any time. If this occurs, a review of the patient’s mental state, his or her capacity to give valid consent and a discussion with the multidisciplinary team is appropriate.
12. Patient Preparation

12.1 There are some key principles in the preparation of the patient which are crucial to gaining patient and carer confidence. These include the demonstration of compassion, a personalised approach and a desire to work in partnership with the family where appropriate.

12.2 The administration of any medicine is an opportunity for assessment and information exchange with the patient and their carers (where appropriate). Preparation should include an assessment to see if the physical and/or mental health of the patient has changed since the previous contact. Any beneficial effects or side-effects experienced since the last injection should be considered and questions asked of the patient and their carer (if appropriate) to elicit any concerns or information needs.

12.3 Preparation at the point of administration will include the registered practitioner exercising accountability for using a ‘double checking’ system where a second practitioner, if available, will also check the prescription to confirm that the dose is due and that it hasn’t already been given; that the intended route, dose and formulation all correlate accurately with the prescription; that there are no contraindications; that any dose calculation is accurate; that the patient’s capacity to consent is confirmed and that the preparation of the injection for administration is correct and that it is in date. In the absence of a second professional it is good practice to get the patient or carer to check the expiry date of the injection and that the dose is correct according to the prescription, etc. and record this in the notes.

12.4 Finally the registered practitioner must confirm both verbally and via the available documentation that the patient does not have any allergy/sensitivity or religious/cultural beliefs which preclude the administration of the injection. This includes allergy/sensitivity to or concerns regarding the vehicle (e.g. sesame oil) or any excipient such as benzyl alcohol.

12.5 Since the last administration of the injection, any change in capacity must be considered and again if there is any doubt about this, an assessment must be undertaken.
13. Imminent Clinical Preparation for the Procedure

13.1 The patient should be made aware of the imminent procedure and their capacity and consent should be assessed and confirmed respectively and recorded in their clinical notes.

13.2 The patient should then be assisted if necessary, into the chosen position for administration of the injection, according to the appropriate chosen site. See Appendix 1: Standard Operating Procedures (SOPs 3 – 6).

13.3 If there is variance from the recommended position, this must be recorded in the clinical notes or record together with the rationale for this clinical decision. This is generally a more common issue when the procedure takes place in the patient's home rather than in a clinical environment. For example, where a choice of dorsogluteal or possibly ventrogluteal injection is made the patient may have a preference to stand to receive their injection rather than lie down. However, standard procedures and principles must still be adhered to. For example, the patient must be asked to take the weight off their foot on the side where the injection is to be administered to reduce tension and steps must be taken to ensure that the patient cannot fall and injure themselves or the registered practitioner.

13.4 Preparation for the administration of an injection begins with hand washing. Hand washing is the single most effective action in preventing the spread of infection and the National Patient Safety Agency (now the NHS Commissioning Board Special Health Authority) described a hand cleansing technique which should be adhered to.6 This may be accessed at: http://www.nrls.npsa.nhs.uk/resources/?entryid45=59848

13.5 Skin cleansing around the injection site should be undertaken according to local trust policy, however, this is a widely debated topic with some evidence supporting the fact that in socially clean patients such skin cleansing is unnecessary.49 If the skin is cleansed with an alcohol swab, a period of 60 seconds (or the recommended product related specific time) must elapse before the injection is administered to ensure that the alcohol has dried on the skin and to avoid a stinging sensation for the patient. Cotton wool balls stored wet in a multi-use container must not be used.

13.6 It is important to evaluate the injection site pre and post injection observing for any swelling, pain, inflammation, infection or tissue damage. If any of these is present it must be recorded in the patient’s health record and advice sought. These are all clinical indicators that further physical assessment is urgently needed prior to any subsequent injection and an alternative site may need to be considered.

13.7 Any special instructions for post injection monitoring in the product license/summary of product characteristics (SmPC) MUST be planned for and followed. For example, after administration of olanzapine long-acting injection the patient must be monitored for at least 3 hours for signs and symptoms consistent with olanzapine overdose.14
14. Choice of Syringe and Needle

14.1 Syringes and needles must be used systematically, safely and securely and all risk associated with their use minimised. Where an antipsychotic for injection is provided in a pack together with a syringe and needle for administration, the technology will have been subjected to a rigorous evaluation process in order for the company to gain a marketing authorisation (product licence) for their product. The syringe and needle provided MUST ALWAYS be used. It is important to read the manufacturer’s instructions regarding syringe and needle selection as packs and presentations may vary. Always refer to SmPC for guidance on the use of needles.

Where the practitioner has to select an appropriate syringe and needle it is necessary to consider the following:

14.2 Syringes come in three main types of fittings: Luer lock, Luer slip tip and eccentric/concentric Luer slip tip. The Luer lock type is generally used for intramuscular injections. The needle must be attached in a push-and-twist manner ensuring the chamfer of the needle is in the same line of sight as the graduation on the syringe. Simply sliding the needle hub onto the syringe will not ensure a secure fitting.

14.3 The smallest possible size of syringe should be selected to accommodate the volume of the product to be given.

14.4 The gauge of the needle refers to the outer diameter of the needle, not the length of the needle nor its internal bore (lumen). Various needle lengths are available for any given gauge and some needles are manufactured with larger internal bores than standard to accommodate the particular needs of a specific product. Smaller gauge numbers indicate larger outer diameters. Needles in common medical use range from 7 gauge (the largest) to 33 (the smallest) on the Stubs scale. Inner diameter depends on both gauge and wall thickness. Thin wall needles have identical outer diameters but larger inner diameters for a given gauge. 21 gauge needles (green hub) are most commonly used for intramuscular injections. The narrowest needle which complies with the product license should be used. Where needles are supplied with an injection, ONLY those needles should be employed.

14.5 Needle length is indicated on the needle pack in inches and/or millimeters. A variety of lengths is available and an assessment of the length of needle required to reach the muscle should be made by an assessment of the individual patient, taking into account any subcutaneous fat. Historically approximately 2-3mm of the needle length was left outside the skin to allow the needle to be removed should it break. Although several nursing authors and textbooks continue to recommend this practice they all tend to cite the opinion of one author.51 Today’s single use hypodermic needles are subject to robust quality control on manufacture and as a result are unlikely to break. Therefore this ritualistic practice needs to be balanced against the need to maximise the length of needle available to reach the muscle.52

14.6 In five studies where subcutaneous fat depth was measured over the gluteus muscle using either computer topography [CT] or ultrasound, the mean was greater than 37mm in women and overweight/obese adults suggesting a ‘standard’ 37mm needle would not be long enough to penetrate muscle at the dorsogluteal site.53,54,55,56,57,58 One study suggests that a 38.1mm needle may not be appropriate for the ventrogluteal site, especially in woman with a BMI of 25 and above.54 There are two case reports and one CT study proposing a correlation between injection into fat and the development of granulomas.55,56,60 A number of authors have argued for a choice of needle based on Body Mass Index [BMI] and gender or visual assessment of the fat layer. However it is important to note that the impact of injecting long-acting antipsychotics into fat has not yet been studied so potential effects on effectiveness or subsequent adverse events are unknown.

14.7 Only the needles recommended and supplied by the manufacturer may be used for the injection of aripiprazole long acting injection. For gluteal administration the recommended
needle is a 38 mm (1.5 inch), 22 gauge hypodermic safety needle; for obese patients with a BMI (Body Mass Index) > 28 kg/m², a 50 mm (2 inch), 21 gauge hypodermic safety needle should be used. For deltoid administration the recommended needle is a 25 mm (1 inch), 23 gauge hypodermic safety needle; for obese patients, a 38 mm (1.5 inch), 22 gauge hypodermic safety needle should be used. 

14.8 Only the Needle-Pro safety needles supplied in the pack may be used for administering olanzapine long acting injection. For obese patients, the 50mm needle is recommended. If the 50mm needle is to be used for the injection, then the 38mm safety needle should be used to withdraw the required volume of suspension. If the 38mm needle is to be used for the injection, then the 50mm safety needle should be used to withdraw the required volume. The desired amount should be withdrawn slowly. Some excess suspension will remain in the vial. This is normal “overage”. The needle safety device should be engaged and the needle removed from the syringe. The remaining safety needle should then be attached to the syringe prior to injection.

14.9 Similarly for paliperidone palmitate, only the needles supplied in the dose pack should be used. The 22G 1½-inch safety needle (0.72 mm x 38.1 mm) (grey hub) needle should be used for dorsogluteal and deltoid injections in patients over 90kg (14 stone 2 lbs). The 23G 1-inch safety needle (0.64 mm x 25.4 mm (blue hub) needle should be used only for deltoid injections in patients under 90 kg. After injection, the needle pro device should be engaged and both the used needle and unused needle discarded appropriately.

14.10 Only the Needle-Pro safety needles supplied in the pack by the manufacturer may be used for administering risperidone long-acting injection. The packs contain two needles and both are fitted with a Needle Pro® safety device. The critical feature in each case is the needle bore. The 20g (yellow hub) needle has a thin wall and the 21g (green hub) needle has an ultra-thin wall. (These walls are thinner than standard 20g and 21g needles.) These thin walls result in a larger bore or lumen than standard needles. This is essential to allow the risperidone suspension to flow freely through the needle. The 2inch 20g needle (yellow hub) must be used for the intra-gluteal injection and the 1inch, thinner 21g needle (green hub) must be used for intra-deltoid injection.

14.11 Retractable needles have a built-in safety mechanism that is activated by fully depressing the plunger while the needle is still in the patient. Once activated, the needle is automatically retracted from the patient, virtually eliminating exposure of the practitioner to the needle. Retractable needle systems come in all gauge sizes and are more costly but safer alternatives to using standard needles and syringes.

14.12 Organisations implementing safer sharps procedures to meet European Union legislative requirements may wish to introduce a variety of needle protection mechanisms including retractable and safety needles (needles with a safety guard). When asked to use these the practitioner must make sure they have been trained in their use and that the particular device has been risk assessed for use with long acting antipsychotic injections. For example the correct gauge and range of needle lengths required must be available for the diluent and to meet the needs of individual patients. Healthcare professionals have a pivotal role to play in assessing risk and evaluating any proposed new safety devices introduced in their clinical area.

14.13 It is common practice to change the needle used for drawing up to a different needle for administration. This is unnecessary unless there has been a risk of blunting the needle (e.g. by perforating a rubber bung or by scratching it on the inside of an ampoule). Blunt drawing-up needles with an internal filter are now available to prevent the accidental drawing up of contaminants from glass ampoules. However, the viscosity (thickness) of the oil and size of the molecules in some oil-based depot injections may make drawing up through a filter needle difficult and could result in some of the product being discarded with the draw up needle when it is changed to the needle for administration. They are therefore NOT recommended for such injections.

14.14 The expiry dates of all equipment must be checked before use.
15.1 The Health and Social Care Act 2008 Code of Practice sets out clear guidance to ensure that patients receive safe care in a clean environment and that the risk of healthcare-acquired infection is kept as low as possible. Regulations implementing European Union [EU] law came into force across the UK on 11 May 2013 and apply across the NHS and independent healthcare sector. The “Sharps Directive” – European Council Directive 2010/32/EU introduced new requirements for employees to report sharps injuries and employers to promote the safe use and disposal of sharps, provide information and training for employees, respond effectively if an injury occurs and review their procedures regularly.

15.2 The standard safety procedures adopted in the United Kingdom for the prevention of inoculation incidents to healthcare practitioners are known as ‘Standard’ or ‘Universal Precautions’, where all blood and body fluids regardless of source are considered to contain infectious agents and are treated as such. Guidelines to this effect were published by the Department of Health in 1998.

15.3 Hand hygiene before and after each patient contact and after contact with blood or other body fluids is the single most effective action that can be employed to prevent the spread of infection.

15.4 Protective clothing should be worn when appropriate. For example, disposable gloves should be used whenever working with blood or other body fluids.

15.5 Any cuts or abrasions must be covered with waterproof dressings.

15.6 Immediately safely dispose of sharps into an appropriate, puncture-proof, labelled sharps bin that is not over filled.

15.7 Never re-sheath needles or detach the needle from the syringe barrel prior to disposal.

15.8 The use of retractable needles and syringes significantly reduces the risk of exposure to blood borne viruses but these may not be suitable for long acting antipsychotic injections if the appropriate length and/or gauge of needle are not available from manufacturers.

15.9 Any needle stick (inoculation) injury must be followed immediately by the application of first aid to bleed and wash the puncture. Local risk management procedures for reporting the incident must be followed and medical support sought through occupational health services.

15.10 Disposable gloves should be worn as part of standard precautions, though they obviously do not provide a secure barrier against needle stick (inoculation) injury, with the main risk to the registered practitioner being exposure to blood-borne viruses (BBV) such as Hepatitis B (HBV), Hepatitis C (HCV) and Human Immunodeficiency Virus (HIV).

15.11 The report of a 7-year study conducted by the Health Protection Agency across 150 centres on significant occupational exposure to blood-borne viruses amongst health care workers, showed that needle stick (inoculation) injuries were the most commonly reported type of significant exposure, with 63% of such injuries caused by hollow bore needles. 45% occurred amongst nursing professionals and 37% amongst medical professionals. Only 2% of the exposures occurred in ancillary staff but most of these were sustained from inappropriately discarded needles in rubbish bags.

15.12 Should any accidental spillage or splash of medicine onto the skin or into the eye occur, the registered practitioner must follow their local risk management and untoward incident reporting procedures?
16. Choice of Injection Site

16.1 Most oil-based depot antipsychotic injections must be administered only into the gluteal muscle by deep intramuscular (IM) injection. The exceptions to this are flupentixol and zuclopenthixol depots which are also licensed to be administered via the lateral thigh.67,68,69,70

16.2 The Summary of Product Characteristics (SmPC)10 for each antipsychotic injection contains full details of the sites for which each is licensed. These are all available online from the electronic Medicines Compendium: http://www.medicines.org.uk/emc/

16.3 The product license for aripiprazole long-acting injection allows administration into either the gluteal or the deltoid muscles.13

16.4 The product license for olanzapine long-acting injection allows administration only into the gluteal muscles.14

16.5 The product license for paliperidone long-acting injection states that the first two initiation doses on day 1 and day 8 must be administered into the deltoid muscle in order to attain therapeutic concentrations rapidly, thereafter the monthly maintenance doses may be administered in either the deltoid or gluteal muscles.15

16.6 The product license for risperidone long-acting injection allows administration into either the gluteal or the deltoid muscles.17

16.7 Registered practitioners have a responsibility to explore the possible sites of administration with the patient and to discuss and record their preference in accordance with their capacity to understand information about the risks and benefits associated with each site. The Summary of Product Characteristics (SmPC) will identify which muscle group an injection is licensed for.

16.8 Where alternative sites of administration are possible, a joint decision on the preferred site is likely to influence adherence to future treatment and enhance the patient’s perception of safety and dignity.

16.9 Any local procedure relating to privacy and dignity must be adhered to. This may include arrangements for working alone as a registered practitioner as well as chaperoning arrangements.

16.10 Whichever site is selected for administration of the injection, the registered practitioner must alternate between the left and right side of the body on each occasion the injection is administered. The site used on each occasion must be recorded in the patient’s clinical record. Alternating injection sites can increase the time between injections in each site and allows more time for each site to heal, reducing the potential for damage to the injection site.
17. Deep Intramuscular Administration

17.1 Short-acting intramuscular injections provide fairly rapid uptake of the medicine into the circulatory system via the muscle fibres of skeletal muscle. They are normally aqueous.

17.2 An oil-based depot antipsychotic injection consists of the antipsychotic esterified to a decanoate or palmitate which is then dissolved in an oily vehicle. The volume to be injected is deposited deep into the muscle, usually the gluteal and forms a depot from where it leaches over time into the bloodstream according to its oil:water partition coefficient. This, together with the time taken for circulating enzymes to hydrolyse the ester back to its active base, is responsible for the prolonged action of these formulations.

17.3 Long-acting antipsychotic injections which are not oil-based (e.g. aripiprazole, olanzapine, paliperidone, risperidone) must also be administered by deep intramuscular injection.

17.4 When a deep intramuscular injection is administered the needle is passed through the epidermis and dermis of the skin and then through the subcutaneous fat layer, depositing the medicine into the skeletal muscle below.

17.5 Z-tracking is the recommended technique for all deep IM injections as it creates a broken injection pathway (the z-track) containing the medicine in the intended target muscle and preventing it from moving back up the track to leak out at the skin surface. This has the advantage of achieving the correct plasma concentration whilst minimising the risk of pain or lesions at the injection site (see Appendix 1, SOP 2).

17.6 There are five main sites used for deep intramuscular injection: the deltoid, the dorsogluteal, the ventrogluteal, the vastus lateralis, and the rectus femoris. The product licenses of individual antipsychotic injections indicate which sites are permitted. Currently none of the depot or other long acting antipsychotic injections is licensed for administration at the rectus femoris site.

17.7 Each site has a maximum volume of solution that the muscle fibres can comfortably and effectively accommodate and each has specific advantages and disadvantages. These are detailed in the table on the following pages.
<table>
<thead>
<tr>
<th>Injection Site</th>
<th>Normal and range of volume for effective muscle absorption</th>
<th>Muscle Used</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deltoid</strong></td>
<td>Unknown (range 0.5 to 2.0ml is usual in practice)</td>
<td>Deltoid</td>
</tr>
<tr>
<td>Injections into the mid deltoid muscle produce a quick uptake of the medicine. The maximum which can be safely injected is unknown and based on opinion. Common practice is to use this site for small volume injections such as vaccinations.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dorsogluteal</strong></td>
<td>1 to 3 ml</td>
<td>Gluteus maximus</td>
</tr>
<tr>
<td>The dorsogluteal site, colloquially called the ‘upper outer quadrant’, targets the gluteus maximus muscle. When this site is used, there is a risk that the medicine will not reach the target muscle, but instead will be injected into subcutaneous fat. As a result delayed uptake of the medicine will occur and tissue irritation or the development of granulomas may result. The clinical significance of delayed uptake is currently unknown. 37mm green and blue needles are unlikely to reach the gluteal muscles in a considerable number of female patients and patients who are overweight or obese. Additionally, the system of visually bisecting the buttocks to landmark the site is flawed and can result in damage to the sciatic nerve or gluteal artery, both of which lie a few centimetres distal to the dorsogluteal injection site, causing pain, paralysis or haemorrhage. There may also be modesty issues associated with the use of this site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vastus Lateralis (lateral thigh) and Rectus Femoris (anterior thigh)</strong></td>
<td>1 to 3 ml</td>
<td>Vastus lateralis or rectus femoris</td>
</tr>
<tr>
<td>These two closely located sites on the lateral (vastus lateralis) and mid anterior (rectus femoris) aspects of the thigh are part of a group of large well defined muscles in non-atrophied patients, the quadriceps femoris. Injections into these sites will produce a slower uptake of the medicine compared to the deltoid, but faster than gluteal muscles. The advantages of these sites include ease of access, but their main disadvantage is that they can cause considerable discomfort.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ventrogluteal</strong></td>
<td>1 to 3 ml</td>
<td>Gluteus medius and Minimus</td>
</tr>
<tr>
<td>There are few disadvantages to using this site. It is relatively free of major nerves and blood vessels, the muscles are large and well defined, and the landmarks for administration are easy to locate. Although it was once believed an additional advantage of this site was consistency of fat depth, original studies were in cadavers and more recent ultrasound and CT research into obese men and women have found significant differences in fat depth here. There may be modesty issues associated with the use of this site.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generic Name</td>
<td>Brand/Trade name</td>
<td>Max Volume</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>--------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Flupentixol decanoate 20mg in 1ml</td>
<td>Depixol Injection</td>
<td>2ml ^57</td>
</tr>
<tr>
<td>Flupentixol decanoate 100mg in 1ml</td>
<td>Depixol Concentrate</td>
<td>2ml ^57</td>
</tr>
<tr>
<td>Flupentixol decanoate 200mg in 1ml</td>
<td>Depixol Low Volume Injection</td>
<td>2ml ^58</td>
</tr>
<tr>
<td>Fluphenazine decanoate 25mg in 1ml</td>
<td>Modecate Injection</td>
<td>Not specified in the SmPC ^12</td>
</tr>
<tr>
<td>Fluphenazine decanoate 100mg in 1ml</td>
<td>Modecate Concentrate Injection</td>
<td>Not specified in the SmPC ^76</td>
</tr>
<tr>
<td>Haloperidol decanoate 50mg in 1ml</td>
<td>Haldol Decanoate 50mg in 1ml</td>
<td>3ml ^77</td>
</tr>
<tr>
<td>Haloperidol decanoate 100mg in 1ml</td>
<td>Haldol Decanoate 100mg in 1ml</td>
<td>3ml ^77</td>
</tr>
<tr>
<td>Pipotiazine palmitate 50mg in 1ml (No longer marketed in the UK but imported on a “Named Patient Basis” for those patients for whom there is no alternative)</td>
<td>Piportil Depot 5% w/v</td>
<td>Not specified in the SmPC ^78</td>
</tr>
<tr>
<td>Zuclopenthixol acetate 50mg in ml</td>
<td>Clopixol Acuphase</td>
<td>3ml ^69</td>
</tr>
<tr>
<td>Zuclopenthixol decanoate 200mg in 1ml</td>
<td>Clopixol Injection</td>
<td>2ml ^70</td>
</tr>
<tr>
<td>Zuclopenthixol decanoate 500mg in 1ml</td>
<td>Clopixol Concentrate Injection</td>
<td>2ml ^70</td>
</tr>
</tbody>
</table>
18. Record Keeping

18.1 Good record keeping is essential for safe patient outcome.

18.2 The clinical record should reflect the registered practitioner’s full, chronological account of assessment, planning and care and provide information relevant to the procedure at the time of the administration of the injection.

18.3 No action or omission by the registered practitioner must compromise patient safety; records must demonstrate this duty of care. The Nursing and Midwifery Council (NMC) Code and Standards for Medicines Management clearly outlines expectations relating to record keeping and should be adhered to.4,5

18.4 A registered practitioner administering an injection is required to following best practice in relation to record keeping as described below:

- Record an accurate reflection of all discussions about informed choice and decisions made.

- Ensure the assessment of the patient’s capacity to consent is assessed and that all legal requirements of the Mental Health Act are met. Both must be recorded.

- Record the clinical intervention and specific references to any patient or carer concerns chronologically.

- As a minimum, the patient’s clinical record must contain details of the date and time of the injection, the name of the medicine and dosage administered, the site of administration together with the registered practitioner’s signature and where applicable a signature from a second registered practitioner. These will normally be recorded on the prescription and administration record. If a student administers the injection under supervision then their signature must be countersigned by the supervising registered practitioner.

- Any other comments that the patient or registered practitioner wish to be noted should also be recorded.

- Any deviation from normal practice must be clearly recorded with the rationale for the clinical decision to do so.

- Any untoward incident must be recorded in accordance with the local approved risk management reporting system.2
19.1 All patients must have their long-acting antipsychotic injection treatment reviewed by the clinical team on a regular basis according to local guidelines. Such reviews should consider effectiveness, including any changes in symptoms and behaviour, side-effects, adherence and physical health.7,

19.2 Such clinical reviews must be undertaken at least every six months in discussion with the patient, carer (where appropriate) and care team and will usually take place as part of the Care Programme Approach review.

19.3 Prior to administration of the next scheduled injection, a discussion with the patient and an assessment of the previous injection site must be undertaken to ascertain if there are signs of swelling, pain, inflammation, infection or tissue damage. These are all clinical indicators that further physical assessment is urgently needed prior to any subsequent injection administration.

19.4 The physical health of people with schizophrenia should be monitored at least once a year with particular attention to cardiovascular disease risk assessment.7

19.5 Monitoring and evaluation must be undertaken in discussion with the patient and their carer (if appropriate) and should reflect a shared understanding of relapse plans and any concerns about treatment.
20. Clinical Outcome Indicators and Audit

20.1 Clinical Audit is a part of the risk management process that supports using information positively to maintain good practice and to improve practice through learning from practice outcomes. The Nursing and Midwifery Council (NMC) Code requires nurses to work with colleagues to monitor quality of care and maintain the safety of their patients at all times.4

20.2 All untoward incidents that arise as a result of the care pathway within this document must be individually and collectively reviewed to provide sufficient knowledge to inform remedial action where necessary.79

20.3 The National Patient Safety Agency (Now the NHS Commissioning Board Special Health Authority.) advised healthcare organisations to undertake an audit of medicines practice relating to injections every year and develop an action plan to improve local practice as a result of this when necessary. A template to undertake this is available from: www.npsa.nhs.uk/nrls/alerts-and-directives/alerts/injectable-medicines/
This audit should cover all aspects of practice and patient safety data for injectable medicines.6

20.4 Organisations can use data from the Care Quality Commission's national and local annual patient survey programme to identify any issues arising from the patients' experience of medication management
21. Training

21.1 There is a requirement that all registered practitioners involved in prescribing, preparing, administering and monitoring oil-based depot and other long-acting intramuscular antipsychotic injections receive training in order to be able to meet the expected level of competency and standards outlined to prevent harm to patients. This is made explicit by the National Patient Safety Agency (Now the NHS Commissioning Board Special Health Authority.) Guidance.6

21.2 It is a requirement that all trusts demonstrate evidence of how risks are managed in relation to training requirements for registered practitioners.2

21.3 Training will be underpinned by the principles of patient experience, patient safety and efficient and effective delivery of care. Training should emphasise a person centred approach, com-passionate attitudes and a recognition that positive patient experience will contribute to patient adherence to treatment programmes.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clopixol acuphase</td>
<td>This is the short-acting formulation of zuclopenthixol injection intended for acute management of psychosis or mania. It should not be confused with the standard longer acting zuclopenthixol depot injection as Acuphase releases the active zuclopenthixol much more quickly and more intensely and incorrect substitution could lead to severe adverse effects.</td>
</tr>
<tr>
<td>Deltoid site</td>
<td>The location for administration of injection into the deltoid muscle.</td>
</tr>
<tr>
<td>Depot</td>
<td>In mental health, this is the term used for oil-based long-acting intramuscular (IM) antipsychotic injections designed to be given by deep IM injection. They consist of the antipsychotic esterified to a decanoate or palmitate dissolved in an oily vehicle. The volume to be injected is deposited deep into the gluteal muscle and forms a depot from where it leaches over time according to its oil: water partition co-efficient into the bloodstream. This, together with the time taken for circulating enzymes to hydrolyse the ester back to its active base, is responsible for the prolonged length of action of these formulations.</td>
</tr>
<tr>
<td>Dorsogluteal site</td>
<td>The location for administration of injection into the gluteus maximus muscle Often referred to as the “Upper Outer Quadrant of the buttock”</td>
</tr>
<tr>
<td>Excipient</td>
<td>An inert substance necessarily incorporated into the formulation. Although these are selected to be inactive, the patient could be allergic to them or object to them on religious or cultural grounds. Details of all excipients are available in the relevant SmPC</td>
</tr>
<tr>
<td>First-pass metabolism</td>
<td>This occurs following the absorption from the gut of a medicine that has been taken orally. A significant proportion of that medicine is metabolised by the liver, usually to an inactive by-product, on its ‘first pass’ through that organ. This reduces its bioavailability.</td>
</tr>
<tr>
<td>Injection</td>
<td>Administering a medicine into a patient’s body using a syringe and a needle.</td>
</tr>
<tr>
<td>Inoculation incident</td>
<td>Any incident where there is exposure to blood borne viruses, this includes a blood splash or needle stick injury.</td>
</tr>
<tr>
<td>Long-Acting Injection (LAI)</td>
<td>In mental health, this is the term preferred for non-oil-based long-acting intramuscular antipsychotic formulations such as aripiprazole (Abilify Maintena), olanzapine (ZypAdhera), paliperidone (Xeplion) and risperidone (Risperdal Consta) long-acting injections. The same careful injection technique is required to administer these products but their release characteristics are very different to each other as well as to oil-based formulations.</td>
</tr>
<tr>
<td>Overage</td>
<td>The additional volume added to an ampoule in order to enable the full volume required to be extracted. The overage is invariably higher for oily injections as they are much more viscous (thicker) than aqueous injections. Such overages vary between countries and the British overage for oily injections is, for example, smaller than the Danish overage. This is why zuclopenthixol (Clopixol) and flupentixol (Depixol) injections always seem generously filled.</td>
</tr>
<tr>
<td><strong>Rectus femoris</strong></td>
<td>The Rectus femoris muscle of the anterior/lateral thigh.</td>
</tr>
<tr>
<td>-------------------</td>
<td>--------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Test dose</strong></td>
<td>An initial low dose of an oil-based depot antipsychotic injection which must be given to assess for tolerability to both the active ingredient and its vehicle or any other excipient.</td>
</tr>
<tr>
<td><strong>Vehicle</strong></td>
<td>An inert liquid in which a medicine is dissolved or suspended. Although these are selected to be inactive, the patient could be allergic to them or object to them on religious or cultural grounds. (e.g. sesame oil, benzyl alcohol). Details of all vehicles are available in the relevant SmPCs.</td>
</tr>
<tr>
<td><strong>Ventriculoanal site</strong></td>
<td>The location for administration of injection into the gluteus medius and gluteus minimus. Colloquially referred to as the “Hip site”</td>
</tr>
<tr>
<td><strong>Vastus lateralis</strong></td>
<td>The lateral quadriceps muscle.</td>
</tr>
<tr>
<td><strong>Z – Tracking</strong></td>
<td>This is the recommended technique for all deep IM injections. It displaces superficial layers of skin and tissue creating a broken injection pathway (the z-track) containing the medicine in the intended target muscle and preventing it from moving back up the track to leak out at the skin surface. This has the advantage of achieving the correct plasma concentration whilst minimising the risk of pain or lesions at the injection site.</td>
</tr>
</tbody>
</table>
23. Additional Reading


Appendix 1: Standard Operating Procedures (SOPs 1-6)

Appendix 1 of this document contains six Standard Operating Procedures (SOPs) for the administration of oil-based depot and other long-acting antipsychotic injections:

SOP 1. General Preparation for Deep Intramuscular (IM) Injection

SOP 2. Z-track Administration Technique

SOP 3. Administration Technique for the Deltoid Site

SOP 4. Administration Technique for the Dorsogluteal Site

SOP 5. Administration Technique for the Ventrogluteal Site

SOP 6. Administration Technique for the Vastus Lateralis and Rectus Femoris Sites

Appendix 2: Oil-based Depot and other Long Acting Injections available

Appendix 3: Dose Comparisons and Chlorpromazine Equivalents of Depot Antipsychotics

Appendix 4: Dose Calculation Workbook

Appendix 5: Questions you might like to ask your Health Care Professional

Appendix 6: Human Factor Error Risk Reduction Checklist Template

Appendix 7: Injection Audit Tool
<table>
<thead>
<tr>
<th><strong>SOP 1</strong></th>
<th><strong>Standard Operating Procedure 1</strong></th>
<th><strong>Guidance document reference</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable to:</strong></td>
<td>Registered practitioners required to administer oil-based depots and other long-acting intramuscular antipsychotic injections in the course of their practice.</td>
<td></td>
</tr>
<tr>
<td><strong>Process 1</strong></td>
<td>Check to see if the patient’s physical or mental health has changed since the previous contact, including the health of the injection sites.</td>
<td>12.2 13.6 19.3</td>
</tr>
<tr>
<td><strong>Process 2</strong></td>
<td>Ask about perceived benefit and any side-effects experienced since the last injection – if this is not the first.</td>
<td>12.2</td>
</tr>
</tbody>
</table>
| **Process 3** | Check to ensure:  
- The prescription is legal and valid  
- The dose is due  
- The dose has not already been given  
- There are no contra-indications or allergies  
- The injection is “in date” | 12.3 12.4 13.6 |
| **Process 4** | Confirm that the patient has the capacity to consent and gives their consent to the procedure. | 12.3 12.5 13.1 |
| **Process 5** | Wash your hands according to accepted hand cleansing technique and put on disposable gloves. | 12.4 15.2 15.4 15.10 13.5 15.3 |
| **Process 6** | Prepare the injection making any necessary dose calculation and using the correct equipment. | 13.3 14.1 14.10 |
| **Process 7** | Get a second registered practitioner, if available, to double check all items in processes 3, 4 & 6. | 12.3 |
| **Process 8** | If a second registered practitioner is not available, ask the patient to check that the correct injection and dose is to be administered and that the injection is “in date”. | 12.3 |
| **Process 9** | Choose the site of administration according to the licensed indication for the injection and in collaboration with the patient, proceed according to SOP3, SOP4, SOP5 or SOP6, whichever is appropriate. | 16.1-16.8 |

**Date of preparation:** June 2016.  
**Date of next review:**  
**Authorised by:**
Figure 2: Z-Track technique
| SOP 2 | Standard Operating Procedure 2  
Z-Track Administration Technique  
(See figure opposite) | Guidance document reference |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicable to:</td>
<td>Registered practitioners required to administer oil-based depots and other long-acting intramuscular antipsychotic injections in the course of their practice. This technique should be used for all intramuscular injections.</td>
</tr>
<tr>
<td>Process 1</td>
<td>Pull the skin in the target area taut and to one side with either the thumb or side of the non-dominant hand and maintain this firm traction of the skin throughout the procedure.</td>
</tr>
<tr>
<td>Process 2</td>
<td>Insert the needle with a darting motion at 90 degrees to the skin surface to an adequate depth to allow the needle to penetrate the muscle. Keep the graduation markings on the syringe barrel visible at all times.</td>
</tr>
</tbody>
</table>
| Process 3 | For dorsogluteal injections only – for all other sites where there are no major blood vessels below the injection site, this is unnecessary so go to Process 4.  
Steady the barrel of the syringe with the remaining fingers of the non-dominant hand and pull back on the plunger with the dominant hand to aspirate. Should blood appear in the syringe all the equipment must be discarded and the whole procedure started again. If no blood appears, it is safe to continue. | 14.5 |
| Process 4 | Depress the plunger slowly (1ml per 10 seconds) to allow the muscle fibres to expand to accommodate the drug. | 73 |
| Process 5 | Wait a further 10 seconds before removing the needle and once it has been removed, only then release the traction on the skin. | 80 |
| Process 6 | If necessary the injection site may be wiped with a dry gauze swab. |  |
| Process 7 | A plaster may be applied if this is the patient’s choice and if they have no known allergy to latex, iodine or elastoplast. | 12.4 |
| Date of preparation: | June 2016. |  |
| Date of next review: |  |  |
| Authorised by: |  |  |
Administration Technique for the Deltoid Site

Figure 3a

Figure 3b & 3c

Figure 3d

Figure 3e
| SOP 3 | Standard Operating Procedure 3  
| Administration Technique for the Deltoid Site  
(See figures opposite) | Guidance document reference |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable to:</strong> Registered practitioners required to administer a long-acting intra-muscular antipsychotic injection at the deltoid site in the course of their practice.</td>
<td></td>
</tr>
</tbody>
</table>
| **Process 1** | Ask the patient to sit down and loosen their clothes so their arm and shoulder are exposed. Ask them to position their arm across their body to relax the muscles (Fig 3a). | 12.2  
12.3 |
| **Process 2** | Follow processes 1 – 9 in SOP1. | |
| **Process 3** | Palpate the upper arm and find the landmarks of the acromion process and the axilla. The target injection site can be located by visualising an inverted triangle which extends from the base of the acromion process and extends down to a point level with the axilla. Now form a rectangle within the original triangle by placing two fingers below the acromion process to form the top edge of the rectangle and with the bottom edge level with the axilla. The side edges should be parallel to the arm. The injection site is in the middle of this visualised rectangle (Figs 3d &3e). | |
| **Process 4** | Clean the skin if necessary with soap and water or according to local policy. | 12.5 |
| **Process 5** | Administer the injection using a Z-track technique (SOP 2) (Fig 3f). | 17.5 |
| **Process 6** | Dispose of all equipment immediately with safe disposal of sharps into an appropriate, puncture proof, correctly labelled sharps bin. Do not re-sheath needle. | 15.6  
15.7 |
| **Process 7** | Remove gloves and wash your hands according to accepted hand cleansing technique. | 15.3  
15.10 |
| **Process 8** | Document on the prescription/administration chart and in the clinical record the date, time and dose of medication administered, injection site and side of the body plus any deviation from standard practice with a rationale for the clinical decision to do so. | 18.4 |
| **Process 9** | Exchange information about monitoring arrangements, how to manage common side effects and what to do if the patient experiences any change to their mental or physical health status before the next clinical contact. | 19.5 |

**Date of preparation:** June 2016.  
**Date of next review:**  
**Authorised by:**
Administration Technique for the Gluteal Site

Figure 4a

Figure 4b & 4c

Figure 4d

Figure 4e

Figure 4f
<table>
<thead>
<tr>
<th>SOP 4</th>
<th>Standard Operating Procedure 4 Administration Technique for the Dorsogluteal Site (See figures it)</th>
<th>Guidance document reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable to:</strong></td>
<td>Registered practitioners required to administer a long-acting intramuscular antipsychotic injection at the dorsogluteal site in the course of their practice.</td>
<td></td>
</tr>
<tr>
<td><strong>Process 1</strong></td>
<td>Follow processes 1 – 9 in SOP1.</td>
<td></td>
</tr>
<tr>
<td><strong>Process 2</strong></td>
<td>Ask the patient to lie down and loosen their clothes so one buttock is exposed. Ask them to either lie on their front or side with the femur internally rotated to minimise pain on administration (Fig 4a).</td>
<td>13.2 13.3</td>
</tr>
<tr>
<td><strong>Process 3</strong></td>
<td>If a syringe and/or needle is provided in the product pack by the manufacturer - this MUST be used. If not select an appropriate needle length to reach the gluteus muscle. Consider the Body Mass Index [BMI] and gender of the patient. In obese patients with a BMI of 30 or more, a 5cm</td>
<td>14.1 - 14.10</td>
</tr>
<tr>
<td><strong>Process 4</strong></td>
<td>Draw an imaginary cross onto one buttock and identify the upper outer quadrant. Divide this first quadrant into quarters. The injection site is located within the upper outer quadrant of the upper outer quadrant, approximately 5cm to 7.5cm below the iliac crest (Fig 4e).</td>
<td></td>
</tr>
<tr>
<td><strong>Process 5</strong></td>
<td>Clean the skin only if necessary, with soap and water or according to local policy.</td>
<td>15.5</td>
</tr>
<tr>
<td><strong>Process 6</strong></td>
<td>Administer the injection using a Z-track technique (SOP 2) (Figs 4f &amp; 4g).</td>
<td>17.5</td>
</tr>
<tr>
<td><strong>Process 7</strong></td>
<td>Dispose of equipment immediately with safe disposal of sharps into appropriate, puncture proof, correctly labelled sharps bin. Do not re- sheath needle.</td>
<td>15.6 15.7</td>
</tr>
<tr>
<td><strong>Process 8</strong></td>
<td>Remove gloves and wash your hands according to accepted hand cleansing technique.</td>
<td>15.3 -15.10</td>
</tr>
<tr>
<td><strong>Process 9</strong></td>
<td>Document on the prescription/administration chart and in the clinical notes record the date, time and dose of medication administered, injection site and side of the body plus any deviation from standard practice with rationale for the clinical decision to do so.</td>
<td>18.4</td>
</tr>
<tr>
<td><strong>Process 10</strong></td>
<td>Exchange information about monitoring arrangements, how to manage common side effects and what to do if the patient experiences any change to their mental or physical health status before the next clinical contact.</td>
<td>19.5</td>
</tr>
</tbody>
</table>

**Date of preparation:** June 2016  
**Date of next review:**  
**Authorised by:**
Administration Technique for the Ventrogluteal Site

Figure 5a

Figure 5b

Figure 5c

Figure 5d
| **SOP 5** | **Standard Operating Procedure 5**  
**Administration Technique for the Ventrogluteal Site**  
(See figures opposite) | **Guidance document reference** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable to:</strong></td>
<td>Registered practitioners required to administer a long-acting intramuscular antipsychotic injection at the ventrogluteal site in the course of their practice.</td>
<td></td>
</tr>
<tr>
<td><strong>Process 1</strong></td>
<td>Follow processes 1 – 9 in SOP1.</td>
<td></td>
</tr>
</tbody>
</table>
| **Process 2** | Ask the patient to lie down on their side and expose their hip (Fig. 5a). | 13.2  
13.3 |
| **Process 3** | Palpate the greater trochanter (Fig 5d). Place the heel of the opposite hand to the patient’s leg on the greater trochanter (i.e. your left hand on their right leg or vice versa). Locate and place index finger on the anterior superior iliac spine and travel along it until your index finger is in line with the vertical axis of the body. Your thumb should be pointing towards the front of the leg. Spread the middle finger to form a ‘V’. The injection site is in the middle of this ‘V’, level with the first knuckles of your fingers (i.e. proximal interphalangeal joints) (Fig 5c). |  |
| **Process 4** | Visualise the site and remove your hand to prevent needle stick injury. |  |
| **Process 5** | Clean the skin only if necessary with soap and water or according to local policy. | 13.5 |
| **Process 6** | Administer the injection using a Z-track technique (SOP 2) (Fig 5e). | 17.5 |
| **Process 7** | Dispose of equipment immediately with safe disposal of sharps into appropriate, puncture proof, correctly labelled sharps bin. Do not re-sheath needle. | 15.6  
15.7 |
| **Process 8** | Remove gloves and wash your hands according to accepted hand cleansing technique. | 15.3 - 15.10 |
| **Process 9** | Document on the prescription/administration chart and in the clinical record the date, time and dose of medication administered, injection site and side of the body plus any deviation from standard practice with a rationale for the clinical decision to do so. | 18.4 |
| **Process 10** | Exchange information about monitoring arrangements, how to manage common side effects and what to do if the patient experiences any change to their mental or physical health status before the next clinical contact. | 19.5 |

**Date of preparation:** June 2016  
**Date of next review:**  
**Authorised by:**
Administration Technique for the Vastus Lateralis and Rectus Femoris Sites

Figure 6a

Figure 6d

©Primal Pictures
| SOP 6 | Standard Operating Procedure 6  
Administration Technique for the Vastus Lateralis and Rectus Femoris Sites  
(See figures opposite) | Guidance document reference |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Applicable to:</strong></td>
<td>Registered practitioners required to administer a long-acting intramuscular antipsychotic injection at the vastus lateralis and rectus femoris sites in the course of their practice.</td>
<td></td>
</tr>
<tr>
<td><strong>Process 1</strong></td>
<td>Follow processes 1 – 9 in SOP1.</td>
<td></td>
</tr>
<tr>
<td><strong>Process 2</strong></td>
<td>Ask the patient to either sit or lie down and expose their upper legs (Fig. 6a).</td>
<td>13.2 13.3</td>
</tr>
<tr>
<td><strong>Process 3</strong></td>
<td>The <strong>Vastus Lateralis</strong> site targets the lateral side of the quadriceps femoris group of muscles and is situated in the anterior lateral aspect of the thigh. It is located by placing the little finger of one hand on the Lateral Femoral Condyle of the knee and the little finger of the other hand on the Greater Trochanter. Now try to touch both thumbs together. Both hands are then spanning the distance and the injection site is at the midpoint (Fig 6e). The <strong>Rectus Femoris</strong> site also targets the quadriceps femoris group of muscles on the mid anterior aspect of the thigh. It is located by placing the little finger of one hand on the patella and the other on the anterior superior iliac spine. Now try to touch both thumbs together. Both hands are then spanning the distance and the injection site is at the midpoint (Fig. 6e).</td>
<td></td>
</tr>
<tr>
<td><strong>Process 4</strong></td>
<td>Visualise the site and remove your hand to prevent needle stick injury (Fig. 6f).</td>
<td></td>
</tr>
<tr>
<td><strong>Process 5</strong></td>
<td>Clean the skin only if necessary with soap and water or according to local policy.</td>
<td>13.5</td>
</tr>
<tr>
<td><strong>Process 6</strong></td>
<td>Administer the injection using a Z-track technique (SOP 2) (Fig 6g).</td>
<td>17.5</td>
</tr>
<tr>
<td><strong>Process 7</strong></td>
<td>Dispose of equipment immediately with safe disposal of sharps into appropriate, puncture proof, correctly labelled sharps bin. Do not re-sheath needle.</td>
<td>15.6 15.7</td>
</tr>
<tr>
<td><strong>Process 8</strong></td>
<td>Remove gloves and wash your hands according to accepted hand cleansing technique.</td>
<td>15.3 15.10</td>
</tr>
<tr>
<td><strong>Process 9</strong></td>
<td>Document on the prescription/administration chart and in the clinical record the date, time and dose of medication administered, injection site and side of the body plus any deviation from standard practice with a rationale for the clinical decision to do so.</td>
<td>18.4</td>
</tr>
<tr>
<td><strong>Process 10</strong></td>
<td>Exchange information about monitoring arrangements, how to manage common side effects and what to do if the patient experiences any change to their mental or physical health status before the next clinical contact.</td>
<td>19.5</td>
</tr>
<tr>
<td><strong>Date of preparation:</strong></td>
<td>June 2016</td>
<td></td>
</tr>
<tr>
<td><strong>Date of next review:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Authorised by:</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 2: Oil-Based Depot and Other Long-Acting Intramuscular Antipsychotic Injections

### General Note
The viscosity of all oil based injections is reduced at warmer temperatures; i.e. it will become less sticky and easier to draw up and administer when close to body temperature. The viscosity (thickness) of sesame oil is higher (thicker) than thin vegetable oil.

### Oil-Based Depot Intramuscular Antipsychotic Injections

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Description</th>
<th>Dose and Administration</th>
<th>Route</th>
</tr>
</thead>
</table>
| **Flupentixol decanoate**<sup>7,8</sup> | In thin vegetable oil (derived from coconuts) | Depixol Injection: 20mg in 1ml  
Depixol Concentrate Injection: 100mg in 1ml  
Depixol Low Volume Injection: 200mg in 1ml  
BNF Max: 400mg weekly | Deep intramuscular injection into the upper outer buttock (dorsogluteal) or lateral thigh (vastus lateralis)  
The maximum volume into a single site should not exceed 2ml  
A test dose of 20mg is indicated |
| **Fluphenazine decanoate**<sup>9</sup> | In sesame oil | Modecate Injection: 25mg in 1ml  
Modecate Conc. Injection: 100mg in 1ml  
12.5mg (6.25mg for patients over 60) to 100mg every 2 – 5 weeks | Deep intramuscular injection into the gluteal region  
A test dose of 12.5mg (6.25mg in the elderly) is indicated |
| **Haloperidol decanoate**<sup>7</sup> | In sesame oil | Haldol Decanoate: 50mg in 1ml  
Haldol decanoate: 100mg in 1ml  
50mg every 4 weeks to 300mg every 4 weeks  
If 2-weekly administration is preferred, these doses should be halved | Deep intramuscular injection into the gluteal region using an appropriate needle, preferably 2-2.5 inches long, of at least 21 gauge  
A test dose of 25mg (12.5mg in the elderly) is indicated |
| **Pipotiazine palmitate**<sup>7</sup> | In sesame oil (No longer marketed in the UK but imported on a “Named Patient Basis” for those patients for whom there is no alternative) | Piportil Depot 5% w/v (50mg in 1ml)  
50mg (5-10mg in elderly) to 100mg every 4 weeks  
BNF max. 200mg every 4 weeks | Deep intramuscular injection into the gluteal region using an appropriate needle, preferably 2-2.5 inches long, of at least 21 gauge  
A test dose of 25mg (5 – 10mg in elderly) is indicated |
| **Zuclopenthixol decanoate**<sup>9</sup> | In thin vegetable oil (derived from coconuts) | Clopixol Injection (200mg in 1ml)  
Clopixol Conc. Injection (500mg in 1ml)  
200mg to 500mg every 1 – 4 weeks  
BNF Max: 600mg every week | Deep intramuscular injection into the upper outer buttock (dorsogluteal) or lateral thigh (vastus lateralis)  
The maximum volume into a single site should not exceed 2ml  
A test dose of 100mg (25-50mg in the elderly) is indicated |
## Other Long-Acting Intramuscular Antipsychotic Injections

<table>
<thead>
<tr>
<th>Antipsychotic Generic Name and Formulation</th>
<th>Principle UK Brand Name</th>
<th>Standard Dose Range for Adult Maintenance Treatment</th>
<th>Practice Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aripiprazole</strong>&lt;sup&gt;14&lt;/sup&gt;</td>
<td>Abilify Maintena 400mg &amp; 300mg</td>
<td>400mg monthly</td>
<td><strong>Route:</strong> Deep intramuscular injection into either the gluteal or the deltoid muscle. Patients should normally be initially successfully treated with oral aripiprazole before receiving the long-acting injection in order to establish tolerability and response. Initial dose titration is not required. It should be administered once monthly as a single injection (no sooner than 26 days after the previous injection). Detailed instructions regarding missed doses are provided in the SmPC. After the first injection, treatment with 10 mg to 20 mg oral aripiprazole should be continued for 14 consecutive days to maintain therapeutic aripiprazole concentrations during initiation of therapy. If there are adverse reactions with the 400 mg dosage, a reduction to 300 mg once monthly should be considered.</td>
</tr>
<tr>
<td>Powder and solvent for prolonged release suspension for deep intra-muscular injection</td>
<td>Pre-filled syringes are also available to save reconstitution.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Olanzapine pamoate monohydrate**<sup>14</sup> | ZypAdhera 210mg, 300mg, 405mg | 150mg – 300mg olanzapine every 2 weeks | **Route:** Deep intramuscular gluteal injection. Only needles supplied in the dose pack should be used. On-line training provided by the manufacturer is available to practitioners unfamiliar with this product. Fractions of a dose may not be administered. |
| Powder and solvent for prolonged release suspension for deep intra-muscular injection | When reconstituted with the supplied solvent all vials provide a final concentration of 150 mg olanzapine per 1 ml. Hence for a 150 mg dose 1 ml of a reconstituted vial is administered. For economic reasons to reduce wastage this should always be the 210 mg preparation. | Doses may be adjusted to allow a 4 weekly frequency noting that 405 mg 4 weekly substitutes for 210 mg 2- weekly regimen | Patients should be initially successfully treated with oral olanzapine before receiving the long-acting injection in order to establish tolerability and response. Fractions of a dose may not be administered. A dosing table in the SmPC provides the information for equivalent long acting IM dose to oral regimen in place. Fractions of a dose may not be administered. The initiation of long acting IM olanzapine should be made without recourse to cross tapering of oral medication. Although this may feel counter-intuitive, non-oil based long acting antipsychotics must be seen as products with discrete pharmacokinetic properties. After each injection, patients must be observed for post injection syndrome (signs and symptoms consistent with olanzapine overdose) in a healthcare facility by appropriately qualified personnel for at least 3 hours. |
## Appendix 3: Dose, dosing interval and approximate chlorpromazine equivalents of depot antipsychotic intramuscular injections

| Antipsychotic Generic Name | Trade Name | Dose (mg) | Normal Dosing Interval | Approximate Dose Equivalent to Chlorpromazine 100mg a day | Range of Values from the Literature
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Flupentixol decanoate</td>
<td>Depixol</td>
<td>40mg</td>
<td>2 weekly</td>
<td>10mg per week</td>
<td>10-20mg per week</td>
</tr>
<tr>
<td>Fluphenazine decanoate</td>
<td>Modecate</td>
<td>25mg</td>
<td>2 weekly</td>
<td>5mg per week</td>
<td>1-12.5mg per week</td>
</tr>
<tr>
<td>Haloperidol decanoate</td>
<td>Haldol</td>
<td>100mg</td>
<td>4 weekly</td>
<td>15mg per week</td>
<td>5 – 25mg per week</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(500 mg of chlorpromazine a day is equivalent to 100 mg of haloperidol decanoate monthly)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(25 mg of fluphenazine decanoate 2-weekly or 40mg of flupentixol decanoate 2-weekly is equivalent to 100 mg of haloperidol decanoate monthly)</td>
<td></td>
</tr>
<tr>
<td>Pipotiazine palmitate</td>
<td>Piportil</td>
<td>50mg</td>
<td>4 weekly</td>
<td>10mg per week</td>
<td>10-12.5mg per week</td>
</tr>
<tr>
<td>(No longer marketed in the UK but imported on a &quot;Named Patient Basis&quot; for those patients for whom there is no alternative)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zuclopenthixol decanoate</td>
<td>Clopixol</td>
<td>200mg</td>
<td>2 weekly</td>
<td>100mg per week</td>
<td>40-100mg per week</td>
</tr>
<tr>
<td>Antipsychotic Generic Name and Formulation</td>
<td>Principle UK Brand Name</td>
<td>Standard dose range for UK adult Maintenance Treatment</td>
<td>Practice Points</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------------------</td>
<td>------------------------------------------------------</td>
<td>-----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Risperidone:</strong></td>
<td>Risperdal Consta 25 mg</td>
<td>25mg to 50mg every two weeks</td>
<td><strong>Route:</strong> Deep intramuscular gluteal or deltoid injection using either the supplied 20 g 50mm safety needle (gluteal) or the 21g 25mm safety needle (deltoid) also supplied. Injections should alternate between buttocks or right and left arms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Powder and solvent for prolonged-release suspension for intramuscular injection</td>
<td>Risperdal Consta 37.5 mg</td>
<td>BNF Max. Dose: 50mg every 2 weeks</td>
<td>Only needles supplied in the dose pack should be used</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risperdal Consta 50 mg</td>
<td></td>
<td>Refrigerated storage and maintenance of the cold chain is essential until administration</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Powder and solvent for prolonged- release suspension for deep intramuscular injection</td>
<td></td>
<td>A test dose is not indicated but tolerability and efficacy of oral risperidone must be confirmed before treatment is initiated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Also available in prefilled syringes to save reconstitution</td>
<td></td>
<td>Fractions of a dose may not be administered.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The maximum volume that may be administered in to one site is less restrictive but for overall comfort not more than single diluent volume should be injected in to any one site. When administering doses above 50mg (unlicensed) it is considered acceptable practice by the authors to use the reconstituted higher strength injection as a diluent for the second vial.

After a single intramuscular injection, the release profile consists of a small initial release of risperidone (<1% of the dose), followed by a lag time of 3 weeks. The main release of risperidone starts from week 3 on-wards, is maintained from 4 to 6 weeks, and subsides by week 7. Oral antipsychotic supplementation should therefore be given during the first 3 weeks of treatment.

The combination of the release profile and the dosage regimen (intramuscular injection every two weeks) results in sustained therapeutic plasma concentrations.

Therapeutic plasma concentrations remain until 4 to 6 weeks after the last injection.
<table>
<thead>
<tr>
<th>Antipsychotic Generic Name and Formulation</th>
<th>Principle UK Brand Name</th>
<th>Standard Dose Range for Adult Maintenance Treatment</th>
<th>Practice Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Paliperidone Palmitate</strong> †5 &lt;br&gt;Prolonged release suspension for injection.</td>
<td>Xeplion 50mgs &lt;br&gt;Xeplion 75mgs &lt;br&gt;Xeplion 100 mgs &lt;br&gt;Xeplion 150 mgs &lt;br&gt;Supplied in prefilled syringes</td>
<td><strong>Initiation:</strong> &lt;br&gt;Day 1: 150 mg into the deltoid muscle &lt;br&gt;Day 8: 100 mg into the deltoid muscle &lt;br&gt;&lt;br&gt;<strong>One month later:</strong> &lt;br&gt;75mg – 150 mg according to clinical need into either the deltoid or gluteal muscles. &lt;br&gt;<strong>Thereafter:</strong> once a calendar month (not 28 days)</td>
<td><strong>Route:</strong> By deep IM injection. The day 1 and day 8 initiation doses must each be administered into the deltoid muscle in order to attain therapeutic plasma concentrations rapidly. Following the second dose, monthly maintenance doses can be administered in either the deltoid or gluteal muscle. &lt;br&gt;&lt;br&gt;A switch from gluteal to deltoid (and vice versa) should be considered in the event of injection site pain if the discomfort is not acceptable. It is also recommended to alternate between left and right sides. Fractions of a dose should not be administered. &lt;br&gt;&lt;br&gt;Only needles supplied in the dose pack should be used.</td>
</tr>
<tr>
<td><strong>Paliperidone Palmitate</strong> 16 &lt;br&gt;Prolonged release suspension for injection every 3 months †9</td>
<td>Trevicta 175mg &lt;br&gt;Trevicta 263mg &lt;br&gt;Trevicta 350 mg &lt;br&gt;Trevicta 525 mg &lt;br&gt;prolonged release suspension of paliperidone for injection in prefilled syringes</td>
<td>Dosing is based on the last dose of one monthly paliperidone injection using a 3.5 fold higher dose. &lt;br&gt;A dosing table is available in the SmPC †8</td>
<td><strong>Route:</strong> Deep intramuscular injection into either the gluteal or the deltoid muscle. Only needles supplied by the manufacturer should be used. &lt;br&gt;&lt;br&gt;Detailed instructions regarding missed doses are provided in the SmPC. &lt;br&gt;&lt;br&gt;If needed, dose adjustment can be made every 3 months in increments within the range of 175 mg to 525 mg based on individual patient tolerability and/or efficacy. &lt;br&gt;&lt;br&gt;Due to the long-acting nature of this formulation the patient’s response to an adjusted dose may not be apparent for several If the patient remains symptomatic, they should be managed according to clinical practice.</td>
</tr>
</tbody>
</table>
Test Dose Calculations for Oil-Based Depot Intramuscular Antipsychotic Injections

For oil based depot intramuscular antipsychotic injections it is good practice to give a test dose before treatment is initiated to assess for tolerability to both the active ingredient as well as to the oily vehicle. Occasionally patients with nut allergy may react to the oil. If a full dose is given from the outset then patients may experience more severe, protracted discomfort.

How Much? A worked example:

The amount recommended for a test dose is stated by the manufacturer in the Summary of Product Characteristics (SmPC) and in the British National Formulary (BNF). A calculation may therefore be required to work out the injection volume required for such a test dose.

For example:

The test dose of flupentixol decanoate for an adult is 10mg

Flupentixol decanoate is available in ampoules containing 20mg in 1ml

10mg is therefore contained in $\frac{1}{20} \times 10 = \frac{1}{2}ml = 0.5ml$

Thus to give a 10mg test dose of flupentixol decanoate, 0.5ml of the solution containing 20mg in 1ml is required

Try this example yourself:

The test dose of zuclopenthixol decanoate is 50mg

Zuclopenthixol decanoate is available in 1ml ampoules containing 200mg in 1ml and you want to give 50mg. What volume should you draw up? Work out your answer in the box below

Answer:

To give a 50mg test dose of zuclopenthixol decanoate, 0.25ml of a solution containing 200mg in 1ml is required.

If you have the correct answer could you show a colleague how you worked it out?
The **line statement method** is a good way to re-assure both yourself and a second person of how the correct answer was reached:

Start with the product in front of you: 200mg in 1ml

\[ \div 2 = 100mg \text{ in } 0.5ml \]

\[ \div 2 = 50mg \text{ in } 0.25ml \]

With this method you will see that whatever you do to left hand side in terms of a mathematical application you do to the right hand side. This principle never changes however hard the figures may look.

**Try this next example:**

What volume of zuclopenthixol decanoate is required to administer a 350mg dose using the 200mg in 1ml ampoule? Work out your answer in the box below.

**Answer:**

To give a 350mg dose of zuclopenthixol decanoate, 1.75ml of a solution containing 200mg in 1ml is required.

The **line statement method** is a good way to re-assure both yourself and a second person of how the correct answer was reached:

Line 1: You start with: 200mg in 1ml

Line 2: \[ \div 2 = 100mg \text{ in } 0.5ml \]

Line 3: \[ \div 2 = 50mg \text{ in } 0.25ml \]

You need 350mg: \[ 350 \div 50 = 7 \]

Multiply line 3 by 7 because 7 x 50mg = 350mg

\[ 350mg = 7 \times 0.25 = 1.75ml \]

**350mg is contained in 1.75ml of the solution containing 200mg in 1ml**
For those who prefer a different way and/or like algebra we can identify a *generic* equation for this process:

Imagine you have an ampoule containing Xmg of antipsychotic in 1ml
You are required to administer a dose of Ymg, and you need to know the volume to draw up
The volume required = \( \frac{Y \times \text{the volume Xmg is contained in}}{X} \)

**Putting the figures from the above example into this equation:**

The volume required = \( \frac{350 \times 1}{200} = 1.75 \text{ml} \)

Based on a real scenario from clinical practice look at the following depot prescription and identify the dose volume required and consider how you would respond to the following prescription. *Rx Depixol 37.5mg 2-weekly*

What volume is required to administer this dose? Work out your answer in the box below:

**Answer**

Flupentixol decanoate (Depixol) comes in two strengths: 20mg in 1ml and 100mg in 1ml.

**Calculation**

**Response & Reflection**

<table>
<thead>
<tr>
<th>Looking at</th>
<th>20mg</th>
<th>in</th>
<th>1ml</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>÷ 2</td>
<td>10mg</td>
<td>in</td>
<td>0.5ml</td>
<td>line 2</td>
</tr>
<tr>
<td>÷ 2</td>
<td>5mg</td>
<td>in</td>
<td>0.25ml</td>
<td>line 3</td>
</tr>
<tr>
<td>÷ 2</td>
<td>2.5mg</td>
<td>in</td>
<td>0.125ml</td>
<td>line 4</td>
</tr>
<tr>
<td>Multiply line 2 by 3</td>
<td>30mg</td>
<td>in</td>
<td>1.5ml</td>
<td>line 5</td>
</tr>
<tr>
<td>Add line 3</td>
<td>5mg</td>
<td>in</td>
<td>0.25ml</td>
<td>line 6</td>
</tr>
<tr>
<td>Add line 4</td>
<td>2.5mg</td>
<td>in</td>
<td>0.125ml</td>
<td>line 7</td>
</tr>
</tbody>
</table>

**Add lines 5,6 & 7**

| 37.5mg | in | 1.875ml |

37.5mg of flupentixol decanoate (Depixol) is contained in 1.875ml of a solution containing 20mg in 1ml (or 0.375ml of the solution containing 100mg in 1ml).

However, neither of these is an accurately measurable volume and the prescription should be referred back to the prescriber for review.

Although depot dosing is not an exact science, approximating impossible volumes is not good medicines management.

Please note that long acting injections of olanzapine, paliperidone and risperidone are all supplied as dose packs and the entire contents of the ampoule should be injected according to the prescribed dose. No dose calculations are necessary with these products.
Appendix 5: Questions to ask your Health Care Professional

The professionals working in partnership with you must give you enough information when planning your care so that you can make informed choices about your treatment. They should anticipate your needs and try to design your care with these in mind.

Before your appointments it may help if you write down some of the questions you might want to ask as you think of them. You may wish to include your carers or relatives in talking through what would be helpful to you.

Some of the things you may wish to consider asking could include:

- What is a depot injection?
- What is a long-acting antipsychotic injection and do these differ from depots?
- How are these different to my tablets?
- How does a depot injection work?
- How does a long-acting injection work?
- What side effects will I have and will they be worse than taking tablets?
- How will I change over from tablets to injections?
- How often will I need an injection?
- Will I need to have it for the rest of my life?
- Can I have the injection at home or will it be given somewhere else?
- Will I need to get undressed?
- Can I give myself this injection?
- What benefit will I have as a result of swapping from tablets to an injection?
- Are there any risks I need to know about?
- Are there any risks at the time of the injection being given to me and will it hurt?
- How will having an injection affect my life and make me feel?
- Will it make me tired?
- Will I be able to drive my car and operate machinery at work?
- Do I have to tell my employer about this treatment?
- Will the injection affect my sleep?
- Will it affect my sex life?
- If I don’t want to accept an injection, what will this mean for my care?
- If I do accept treatment by injection, can I change my mind if I don’t like it at any time?
- Can you give me an injection against my wishes?
## Appendix 6: Human Factor Error Risk Reduction Checklist Template

<table>
<thead>
<tr>
<th>Assessment of capacity to consent</th>
<th>Legal requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Read the patient’s clinical record</td>
<td>Need up to date clinical knowledge of patient</td>
</tr>
<tr>
<td>Check there are no changes to the patient’s health that require review</td>
<td>Reduces the risk of adverse patient outcome</td>
</tr>
<tr>
<td>Check the patient understands all the information relevant to treatment and has the capacity to confirm their decision to proceed</td>
<td>Compliance with the legal requirements of the Mental Health Capacity Act 2005</td>
</tr>
<tr>
<td>The capacity of the patient is confirmed and recorded</td>
<td>Their capacity may change between injections and needs to be confirmed</td>
</tr>
<tr>
<td>The prescription is accurate and conforms with the local Medicines Code</td>
<td>Prescription inaccuracy will place both patient and practitioner at risk</td>
</tr>
<tr>
<td>Ask the patient when their last depot injection was given</td>
<td>Cross check that the current injection has not already been given and that the prescription and or clinical notes were not signed in error</td>
</tr>
<tr>
<td>The product license for the injection is for the site planned</td>
<td>Not all injections are for use in all muscle groups</td>
</tr>
<tr>
<td>Hand hygiene observed before and after patient contact. Use disposable gloves, apron and eye protection where appropriate</td>
<td>Prevention of infection</td>
</tr>
<tr>
<td>Medical Devices assembled in accordance with non-touch technique</td>
<td>Prevention of infection</td>
</tr>
<tr>
<td>Read the label, check the injection is in-date and cross check the label against the prescription</td>
<td>Confirm the right medicine, right dose, right frequency, right patient, right formulation, right route, right time</td>
</tr>
<tr>
<td>Check any calculation of dose volume</td>
<td>Reduces the risk of the wrong dose being administered</td>
</tr>
<tr>
<td>Check the patient’s allergy status</td>
<td>Reduces the risk of anaphylaxis</td>
</tr>
<tr>
<td>Check the previous injection site</td>
<td>Adverse reaction outcome assessment</td>
</tr>
<tr>
<td>Check the patient is in the appropriate position for administration of the injection for the site selected</td>
<td>To support accuracy of location of muscle group and prevent discomfort</td>
</tr>
<tr>
<td>Human Factor Error Risk Reduction Checklist for the Administration of a Long-Acting Intramuscular Injection</td>
<td>Rationale for the Double Check</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Locate the injection site</td>
<td>Prevents damage to nerve structures and blood vessels</td>
</tr>
<tr>
<td>Clean the injection site. If using an alcohol based swab, allow to dry for 60 seconds</td>
<td>Reduces discomfort</td>
</tr>
<tr>
<td>Use Z track technique and keep the graduation markings on the syringe barrel visible</td>
<td>Prevents discomfort and back flow of medication. If the needle and syringe become disconnected, it will be possible to establish how much medication has been administered</td>
</tr>
<tr>
<td>Insert needle and check for aspirate before proceeding (only necessary for the dorsogluteal site)</td>
<td>Prevents administration into the blood stream</td>
</tr>
<tr>
<td>Injection should be given at a rate of 1ml in 10 seconds</td>
<td>To allow the muscle fibres to expand to absorb the solution. Reduces the risk of syringe barrel ‘locking’ and incomplete administration of the dose.</td>
</tr>
<tr>
<td>Retract or remove the needle from the patient 10 seconds after administration of the injection</td>
<td>To allow the medication to diffuse at the point of entry</td>
</tr>
<tr>
<td>Dispose of all sharps immediately following withdrawal from patient</td>
<td>Minimises the risk of blood borne virus transmission and contamination</td>
</tr>
<tr>
<td>Dispose of all equipment safely and appropriately</td>
<td>Reduces the risk of contamination and inoculation injury</td>
</tr>
<tr>
<td>Observe the patient for deviations from expected outcomes during the procedure</td>
<td>Allows rapid action by assessing for any untoward event and formulating a plan of care through intervening with speed. Compliance with risk management processes and reporting of untoward events</td>
</tr>
<tr>
<td>The administration record must be signed and all necessary clinical recording made</td>
<td>Accurate recording of the procedure and any deviations from the norm is essential</td>
</tr>
<tr>
<td>Advise the patient when to get in touch and who to contact if they have concerns about their wellbeing following the administration and ensure a patient information leaflet is given for reference</td>
<td>The patient has all the necessary information to make continued health care decisions</td>
</tr>
</tbody>
</table>
## Appendix 7: Oil-based Depot and Other Long-Acting Intramuscular Antipsychotic Injection Audit Tool

<table>
<thead>
<tr>
<th>Criteria: Aspect of Clinical Care</th>
<th>Compliance Rate: (Standard)</th>
<th>Examples of Assurance Evidence</th>
<th>Exceptions</th>
<th>Assessment of Compliance or Non-Compliance: Standard Achieved</th>
<th>Action Required</th>
<th>Lead Responsibility &amp; Timescale for Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Organisational</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| 1. The registered practitioner has access to evidence based, up to date procedural guidance/good practice documents that describe safe practice for prescribing, preparing, administering and monitoring injectable medicines | 100%                        | Intranet clinical policies and procedures  
Clinical policies and procedures folder  
Good practice data base  
National Patient Safety Agency information  
Policy and procedure approval date from local sign off committee  
Distribution list for clinical area | None identified | | |
<p>| 2. All registered practitioners who are expected to administer an injectable medicine have received training within the clinical team | 100%                        | Training data base | None identified | | |</p>
<table>
<thead>
<tr>
<th>Criteria: Aspect of Clinical Care</th>
<th>Compliance Rate (Standard)</th>
<th>Examples of Assurance Evidence</th>
<th>Exceptions</th>
<th>Assessment of Compliance or Non Compliance: Standard Achieved</th>
<th>Action Required</th>
<th>Lead Responsibility &amp; Timescale for Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription and Administration Documents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 Patient’s full name is correctly entered onto every sheet of the Prescription/administration document</td>
<td>100%</td>
<td>Prescription/administration document is chart cross referenced with patient NHS identification records document</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Allergy section is fully completed</td>
<td>100%</td>
<td>Prescription/administration document</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. The prescription is legible</td>
<td>100%</td>
<td>Prescription/administration document</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Each prescription is dated accurately</td>
<td>100%</td>
<td>Prescription/administration document</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 Each prescription has the prescriber’s signature</td>
<td>100%</td>
<td>Prescription/administration document Pharmacy signatory records for registered practitioners</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Dosage and frequency instructions are recorded</td>
<td>100%</td>
<td>Prescription/administration document</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 The antipsychotic is administered as prescribed with respect to A. the time, B. frequency C. date</td>
<td>100%</td>
<td>Prescription/administration document</td>
<td>Where clinical review indicates change and is recorded in the notes with prescription adjustment by the prescriber</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria: Aspect of Clinical Care</td>
<td>Compliance Rate (Standard)</td>
<td>Examples of Assurance Evidence</td>
<td>Exceptions</td>
<td>Assessment of Compliance or Non Compliance: Standard Achieved</td>
<td>Action Required</td>
<td>Lead Responsibility &amp; Timescale for Completion</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------------------</td>
<td>--------------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Medical/Nursing Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 A physical healthcare assessment has been undertaken in the last year</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 It has been documented that joint decision making between the prescriber and patient regarding the antipsychotic has taken place</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Documented evidence of information on this treatment having been given to the patient prior to its prescription</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 If the patient lacks capacity the decision is discussed with the carer or advocate</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14 Concordance has been discussed and recorded at the point of prescription</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td>Pharmacy records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 The patient has been asked whether they would prefer a long-acting injection to an oral formulation by the prescriber</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td>Pharmacy records</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Side-effects have been assessed and recorded in the notes within the last six months</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td>Pharmacy records</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Criteria: Aspect of Clinical Care</td>
<td>Compliance Rate (Standard)</td>
<td>Examples of Assurance Evidence</td>
<td>Exceptions</td>
<td>Assessment of Compliance or Non Compliance: Standard Achieved</td>
<td>Action Required</td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------</td>
<td>-----------------------------</td>
<td>-------------------------------</td>
<td>------------</td>
<td>-----------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>17</td>
<td>The antipsychotic is prescribed within the standard dosage range and frequency interval in accordance with recommendations in the BNF and SmPC</td>
<td>100%</td>
<td>Prescription/administration document</td>
<td>Documented clinical rationale to prescribe the antipsychotic outside recommend BNF/SmPC limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>If the antipsychotic is prescribed outside recommended BNF/SmPC limits there is a clearly recorded clinical rationale for this decision</td>
<td>100%</td>
<td>Medical/nursing notes Prescription/administration document</td>
<td>None Identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Therapeutic response to treatment is recorded at clinical reviews at least 3 monthly</td>
<td>100%</td>
<td>Medical/nursing notes Pharmacy records</td>
<td>None Identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>The patient has undergone a clinical review within the last 3 months</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None Identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>A clinical review has involved the patient’s carer within the last 3 months where applicable</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>Where there is no carer or advocate identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Criteria:</td>
<td>Compliance Rate (Standard)</td>
<td>Examples of Assurance Evidence</td>
<td>Exceptions</td>
<td>Assessment of Compliance or Non Compliance: Standard Achieved</td>
<td>Action Required</td>
</tr>
<tr>
<td>-----</td>
<td>-----------</td>
<td>-----------------------------</td>
<td>-------------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>22</td>
<td>Patients prescribed an oil-based depot long-acting intramuscular antipsychotic injection for the first time are given a test dose of the preparation to assess for tolerability</td>
<td>100%</td>
<td>Medical/nursing notes Pharmacy records</td>
<td>Patients receiving other long-acting intramuscular antipsychotic injections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Consent for administrating the injection has been obtained from the patient and is documented in the notes when each injection is administered</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>The reason for administering the injection is documented in the patient’s notes by the nurse performing the procedure after each injection is administered</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Where the patient lacks capacity to give informed consent to receive the injection, the reason why the registered nurse believes the intervention to be in the best interests of the individual is recorded in the notes</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criteria: Aspect of Clinical Care</td>
<td>Compliance Rate (Standard)</td>
<td>Examples of Assurance Evidence</td>
<td>Exceptions</td>
<td>Assessment of Compliance or Non Compliance: Standard Achieved</td>
<td>Action Required</td>
<td>Lead Responsibility &amp; Timescale for Completion</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------------------</td>
<td>-------------------------------</td>
<td>------------</td>
<td>----------------------------------------------------------</td>
<td>----------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Medical/Nursing Notes (continued)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>An evaluation of the injection site has been done a) Pre injection b) (Post injection Reference has been made to c) observation for swelling d) pain e) inflammation, f) infection g) tissue viability damage h) patient concerns</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>At the time of each injection the following is recorded: Name of antipsychotic Date of administration Time of administration Dose administered Injection site Side in which it was given (L) or (R)? (cross reference with prescription/administration document)</td>
<td>100%</td>
<td>Medical/nursing notes Prescription/administration document</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>The injection site is rotated after each administration</td>
<td>100%</td>
<td>Medical/nursing notes Prescription/administration document</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Side effects of the previous injection have been Assessed and documented in</td>
<td>100%</td>
<td>Medical/nursing notes</td>
<td>None identified</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
25. References


2 NHS Litigation Authority Risk Management Standards 2012-13 for NHS Trusts providing Acute, Community, or Mental Health & Learning Disability Services and Non-NHS Providers of NHS Care. NHS Litigation Authority January 2012


12 Modecate SmPC. http://www.medicines.org.uk/emc/medicine/6956/SPC/Modecate+Injection+25mg+ml/ (Accessed 15/05/16)

13 Abilify Maintena SmPC http://www.medicines.org.uk/emc/medicine/31375 (Accessed 23/05/16)


16 Trevicta SmPC https://www.medicines.org.uk/emc/medicine/32050

17 Risperdal Consta SmPC http://www.medicines.org.uk/emc/medicine/9939/SPC/RISPERDAL+CONSTA+25%2c+37.5+and+50+mg+powder+and+solvent+for+prolonged. (Accessed 15/05/16).


21 Waddell L. Taylor M. Attitudes of patients and mental health staff to antipsychotic long-acting injections: systematic review British Journal of Psychiatry 2009;179:300-307.s43-s50


31 The Mental Health Act 2007, Office of Public Sector Information


33 Mental Health (Care & Treatment) (Scotland) Act 2003. The Stationery Office Ltd.


35 National Coordinating Centre for the Service Delivery and Organisation Concordance, adherence and compliance in medicine. London School of Hygiene & Tropical Medicine. 2005


37 National Prescribing Centre. A competency framework for shared decision-making with patient from receptor pharmacology to improved outcomes: individualising the selection, dosing, and switching of antipsychotics. Achieving concordance for taking medicines. 2007


41 Nurses, the Administration of Medicine for Mental Disorder and the Mental Health Act 1983. The Care Quality Commission, October 2008.


47 Regulation and Quality Improvement Authority http://www.rqia.org.uk/home/index.cfm (Accessed 23/05/16)


53 Burbridge B.E. Computed tomographic measurement of gluteal subcutaneous fat thickness in reference to failure of gluteal intramuscular injections Canadian Association of Radiologists Journal 2007 58(2): 72-75


56 Nisbet A.C Intramuscular gluteal injections in the increasingly obese population: Retrospective study British Medical Journal 2006 332(7542): 637-638


60 Michaels L and Poole R W. Injection granuloma of the buttock Canadian Medical Association Journal 1970 102:626-8


70 Clopixol Injection and Clopixol Concentrate injection SmPC. (http://www.medicines.org.uk/emc/medicine/21319 (Accessed 23/05/16).


75 Malkin, B. Are techniques used for intramuscular injection based on research evidence? Nursing Times 2008; 104(50/51):48-51.


