## MON (Maz Oxford Nuffield)  
### Pin Infection Grading System ©

<table>
<thead>
<tr>
<th><strong>Minor Grades</strong></th>
<th><strong>Signs &amp; Symptoms</strong></th>
<th><strong>Treatment</strong></th>
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</table>
| **Grade 1**  
NOT thought as clinically infected but as a reaction | Slight redness +/- slight discharge | Increased local pin site care only “watch site for changes” |
| **Grade 2**  
Clinically thought as infected at the pin skin infection | Tenderness at pin site. Able to mobilise with analgesia. Increasing redness +/- discharge of serous / purulent discharge. | Increased local pin site care. Swab for MC&S (Micro culture & sensitivities). Immediate commencement on anti-staphylococcal antibiotic. |
| **Grade 3**  
| Intensive redness + Pain +/- discharge of purulent discharge +/- swelling. Unable to mobilise on current analgesia. Periosteal reaction on x-ray? Pin loose? | Intensive local pin care. Admit, IV antibiotics 5-7 days; Limb elevation; X-ray to exclude periosteal reaction or loosening of pin, if X-ray signs positive, move to grade 4 |
| **Major Grades** | | |
| **Grade 4**  
Severe soft tissue involvement > 1 pin  
Periosteal reaction present  
Check for bone lysis | No response to local treatment or antibiotics. Removal of pin; IV antibiotics 5-7 days; second stage plan of new pin placement |
| **Grade 5**  
Severe soft tissue involvement > 1 pin + Osteomyelitis | Pin removal: Further surgery to control bone infection. Samples for MC&S; IV antibiotic (long course) |
| **Grade 6**  
Sequestrum +/- sinus formation while frame treatment still ongoing | Potential Removal of fixator; Debridement of sequestrum & sampling for MC&S. Limb salvage treatment. Long course of IV antibiotics. |

### Following Frame Removal:  
**Grade 6B**  
Pain / tenderness over old pin tract +/- sinus formation  
Sequestrum at old pin tract on x-ray  
Debridement of pin tract; samples for MC&S; 3 perio-op IV antibiotics; oral antibiotic 2 week