

## Supplementary Material

### **An economic evaluation of point-of-care ultrasound for children presenting to the emergency department with suspected septic arthritis of the hip**

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## Supplementary files

**Table S1**

Cost per year for ultrasound use for suspected hip septic arthritis

|   | <b>Cost per year for ED</b> | <b>Number of hours used per year</b> | <b>Percentage use for suspected hip septic arthritis</b> | <b>Cost for POCUS per year</b> |
|---|-----------------------------|--------------------------------------|--|--------------------------------|
| <b>Hardware: Initial ultrasound purchases (\$64,000 each over 10 years)</b> | \$12,800                    | -                                    | -  | -                              |
| <b>US maintenance (\$3500 each per year, for the last 5 years)</b>          | \$3,500                     | -                                    | -  | -                              |
| <b>Consumables</b>  | \$1,000                     | -                                    | -  | -                              |
| <b>POCUS server</b>   | \$15,650                    | -                                    | -  | -                              |
| <b>Total</b>  | \$32,950                    |                                      |  |                                |
| <b>Number of hours US use per year</b>                                      | 4928                        |                                      |  |                                |
| <b>Hip POCUS per year</b>   | -                           | 10.13                                | 0.21   | \$67.76                        |
| <b>Total for training year 1</b>  | -                           | 62.32                                | 1.26   | \$416.73                       |
| <b>Total for subsequent years</b>   | -                           | 34.50                                | 0.70   | \$230.70                       |

**Table S2**

Costs of training and credentialling for point-of-care ultrasound

| Cost item   | Clinician            | Clinician # | # of sessions | Session length (hours) | Total hours | Hourly rate | Year 1             | Ongoing |
|---|----------------------|-------------|---------------|------------------------|-------------|-------------|--------------------|---------|
| <b>First year - initial training</b>  |                      |             |               |                        |             |             |                    |         |
| <b>Development of materials</b>   |                      |             |               |                        |             |             |                    |         |
| Educational materials   | Sonographer educator | 1           | 1             | 20                     | 20          | 78.02       | \$1,560.40         | -       |
| Loading materials into learning system  | Education officer    | 1           | 1             | 4                      | 4           | 30          | \$120.00           | -       |
|   |                      |             |               |                        |             |             | <b>\$1,680.40</b>  |         |
| <b>Delivery of training (3 trainees per workshop, 1.5 hours each workshop = 7 sessions)</b>                       |                      |             |               |                        |             |             |                    |         |
| Trainer   | Emergency Physician  | 1           | 7             | 1.5                    | 10.5        | 230.97      | \$2,425.19         | -       |
|   | Sonographer          | 1           | 7             | 1.5                    | 10.5        | 78.02       | \$819.21           | -       |
| Trainee   | Emergency Physicians | 15          | 1             | 1.5                    | 22.5        | 230.97      | \$5,196.83         | -       |
|   | Nurse practitioners  | 5           | 1             | 1.5                    | 7.5         | 93.05       | \$697.88           | -       |
|   |                      |             |               |                        |             |             | <b>\$9,139.10</b>  |         |
| <b>Experience phase (performing 8 scans, one is a formative assessment, assessed by the Sonographer educator)</b> |                      |             |               |                        |             |             |                    |         |
| Trainer (formative assessment)  | Sonographer educator | 1           | 16            | 0.333                  | 5.33        | 78.02       | \$415.69           |         |
| Trainee   | Emergency Physicians | 15          | 8             | 0.333                  | 39.96       | 230.97      | \$9,229.56         |         |
|   | Nurse practitioners  | 5           | 8             | 0.333                  | 13.32       | 93.05       | \$1,239.43         |         |
|   |                      |             |               |                        |             |             | <b>\$10,884.68</b> |         |
| <b>Credentialling (Summative assessments - 3 trainees per session)</b>  |                      |             |               |                        |             |             |                    |         |
| Trainer   | Emergency Physician  | 1           | 7             | 0.5                    | 3.5         | 230.97      | \$808.40           | -       |
| Trainee   | Emergency Physician  | 15          | 1             | 0.5                    | 7.5         | 230.97      | \$1,732.28         | -       |
|   | Nurse practitioner   | 5           | 1             | 0.5                    | 2.5         | 93.05       | \$232.63           | -       |
|   |                      |             |               |                        |             |             | <b>\$2,773.30</b>  | -       |

**Ongoing maintenance of Credentialing**

| <b>Maintenance per year (8 scans required over 2 years, one is checked by Sonographer)</b>    |                     |                    |    |       |              |                    |                   |                   |
|---|---------------------|--------------------|----|-------|--------------|--------------------|-------------------|-------------------|
| Trainer   | Sonographer         | 1                  | 4  | 0.083 | 0.332        | 78.02              |                   | \$25.90           |
| Trainee   | Emergency Physician | 15                 | 4  | 0.333 | 19.98        | 230.97             |                   | \$4,614.78        |
|   | Nurse practitioner  | 5                  | 4  | 0.333 | 6.66         | 93.05              |                   | \$619.71          |
|   |                     |                    |    |       |              |                    |                   | <b>\$5,260.40</b> |
| <b>Training new staff (1 EP and 1 NP per year)</b>  |                     |                    |    |       |              |                    |                   |                   |
| <b>Training</b>   |                     |                    |    |       |              |                    |                   |                   |
| Trainer   | Emergency Physician | 1                  | 1  | 1.5   | 1.5          | 230.97             | -                 | \$346.46          |
|   | Sonographer         | 1                  | 1  | 1.5   | 1.5          | 78.02              | -                 | \$117.03          |
| Trainee   | Emergency Physician | 1                  | 1  | 1.5   | 1.5          | 230.97             | -                 | \$346.46          |
|   | Nurse practitioner  | 1                  | 1  | 1.5   | 1.5          | 93.05              | -                 | \$139.58          |
|   |                     |                    |    |       |              |                    |                   | <b>\$949.52</b>   |
| <b>Experience phase (8 scans, one is a formative assessment, assessed by the Sonographer)</b> |                     |                    |    |       |              |                    |                   |                   |
| Trainer (formative assessment)  | Sonographer         | 1                  | 16 | 0.333 | 5.33         | 78.02              |                   | \$415.69          |
| Trainee   | Emergency Physician | 1                  | 8  | 0.333 | 2.66         | 230.97             |                   | \$615.30          |
|   | Nurse practitioner  | 1                  | 8  | 0.333 | 2.66         | 93.05              |                   | \$247.89          |
|   |                     |                    |    |       |              |                    |                   | <b>\$1,278.88</b> |
| <b>Credentialing (Summative assessments)</b>  |                     |                    |    |       |              |                    |                   |                   |
| Trainer   | Emergency Physician | 1                  | 2  | 0.5   | 1            | 230.97             |                   | \$230.97          |
| Trainee   | Emergency Physician | 1                  | 1  | 0.5   | 0.5          | 230.97             |                   | \$115.49          |
|   | Nurse practitioner  | 1                  | 1  | 0.5   | 0.5          | 93.05              |                   | \$46.53           |
|   |                     |                    |    |       |              |                    |                   | <b>\$392.98</b>   |
| Use of portable ultrasound  |                     |                    |    |       |              |                    | \$416.73          | \$230.70          |
| <b>Total per year</b>   |                     |                    |    |       | <b>180.1</b> | <b>\$24,894.20</b> | <b>\$8,112.47</b> |                   |
| <b>Total per year averaged over 5 years</b>   |                     | <b>\$11,468.82</b> |    |       |              |                    |                   |                   |
| <b>Total per year averaged over 10 years</b>  |                     | <b>\$9,790.64</b>  |    |       |              |                    |                   |                   |

