RDTC TRACKING SHEET

- Record patient information in top right corner
- When completed, place in RDTC binder at A-pod Faculty desk

Name: _____________________________
MR# ______________________________

Stamp OR write patient information above

ED provider (i.e. faculty/PA/resident to complete)

Protocol: ________________________________________________________

Date: _____/ _____/ _____ Time: _____ : _____ (military)

Current ED Location _________ (pod and room #)

Name of supervising ED provider: ________________________________

Name of RDTC Faculty: ________________________________

RDTC PA / Faculty to complete

Disposition: Date: _____/ _____/ _____ Time: _____ : _____ (military)

☐ Hospitalized

☐ Discharged

☐ AMA / Elopement

PLEASE PLACE IN BINDER AT COMPLETION OF PATIENT COURSE
ED MD/PA Protocol Checklist and Templates

Required Activities

In order to bill for RDTC, we must have Orders, Progress Notes and Discharge Note. The entire completed RDTC Packet must be returned to the HUC at discharge.

☐ RDTC Binder Sheet (ED Provider begins. RDTC Provider Completes.)

☐ Dictate ED Summary Note (ED Provider – addendum by attending)

☐ Sign, Date and Time Order Set (RDTC Attending)

☐ Dictate RDTC Admission Note including reason for RDTC and the risk Stratification. (RDTC Provider–addendum by attending)

☐ Any patient seen in the ED before Midnight who then goes into the RDTC after midnight needs a second note dictated at the level 4/5* plus the risk stratification. (RDTC Provider–addendum by attending)

☐ Document RDTC Progress Notes (RDTC Provider)

☐ Sign, Date and Time Discharge Order Sheet (RDTC Attending)

☐ Dictate RDTC Discharge Summary Note (RDTC Provider–addendum by attending)

☐ Give entire RDTC Packet to HUC (RDTC Provider)

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*Level 4
4 HPI elements
2+ ROS
3/3 Past, Fam, Social HX
EXAM 5-7 body areas/organ sx
MDM straight forward – mod complexity

Level 5
4 HPI elements
10+ ROS
3/3 Past, Fam, Social Hx
EXAM 8+ organ sx
MDM High complexity
Dictation Templates

**RDTC Attending Summary Template (if no PA to do admit note)**
This patient has been risk-stratified based on the available history, physical exam, and related study findings, and admission to observation status for further diagnosis/treatment of ________ is warranted. This extended period of observation is specifically required to determine the need for hospitalization. This patient will be treated/monitor with/for ________. We will observe the patient for the following endpoints ________. When met, appropriate disposition will be arranged.

**Physician's Assistant Admission Summary Template**
I am dictating on behalf of the attending ______________. This patient has been risk-stratified based on the available history, physical exam, and related study findings, and admission to observation status for further diagnosis/treatment of ________ is warranted. **This extended period of observation is specifically required to determine the need for hospitalization.** This patient will be treated/monitor with/for ________. We will observe the patient for the following endpoints ________. When met, appropriate disposition will be arranged.

**Discharge Home Stat Disposition Summary Template**
This patient has been cared for according to standard RDTC protocol for _______________ (diagnosis). Significant events during the course of observation include (detail testing, therapy, and response). This extended period of observation was specifically required to determine the need for hospitalization. (Please give evidence for medical necessity of DURATION of observation—i.e. when condition improved sufficiently or when study results became available.) This patient is stable for discharge based on the following diagnostic/therapeutic criteria. Prior to discharge from observation, the final physical examination reveals _______________. Total length of observation time was ________ hours. (Detail discharge instructions and discussions with primary/consulting MDs)

If PA dictating add: I have reviewed the case with Dr. __________(RDTC Attending.)

**Admission Disposition Summary Template**
This patient has been cared for according to standard RDTC protocol for _______________ (diagnosis). Significant events during the course of observation include (detail testing, therapy, and response). **This extended period of observation was specifically required to determine the need for hospitalization.** (Please give evidence for medical necessity of DURATION of observation—i.e. when condition improved sufficiently or when study results became available.) *It is now clear based on _______________ that this patient will require admission to hospital for _________. Prior to discharge from observation, the final physical examination reveals _______________. Total length of observation time was ________ hours.

If PA dictating add: I have reviewed the case with Dr. __________(RDTC attending).
ACETAMINOPHEN OVERDOSE
INCLUSION AND DISCHARGE CRITERIA

ADMISSION

Inclusion Criteria (if ALL criteria apply patient is a POTENTIAL RDTC candidate)

<table>
<thead>
<tr>
<th>Y</th>
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Exclusion Criteria (if ANY criteria apply patient is NOT an RDTC candidate)

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DISPOSITION

Disposition Criteria (if ANY criteria apply patient should be hospitalized)

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Figure 2. Risk of hepatotoxicity after acute acetaminophen (APAP) ingestion treated with N-acetylcysteine (NAC). The graph illustrates the discrete probability of developing peak aminotransferase ≥1,000 IU/L after acute acetaminophen overdose (curved blue lines), conditioned on the absence of ethanol. For reference, the lower treatment line of the Rumack-Matthew nomogram is included (straight red line). To use the graph, plot the earliest measured postpeak [APAP] obtained at least 4 hours post-ingestion against the time of phlebotomy. Then draw a line parallel to the red Rumack-Matthew nomogram line until the time of NAC initiation is reached. The risk of hepatotoxicity is then estimated using the blue lines. For patients not given NAC, extend the line toward the right into the area of approximately parallel isoprobability lines to estimate the risk of hepatotoxicity. To illustrate, a patient with a serum [APAP] of 380 μg/mL measured 5 hours after ingestion is treated with NAC beginning 9 hours after ingestion. The measured unadjusted [APAP] is plotted (red square) and then extended to 9 hours (blue square). Assuming the patient did not coingest ethanol and is not an alcoholic, the estimated probability of hepatotoxicity is approximately 15%. Had NAC been initiated within 6 hours of ingestion, this risk would be less than 1%. Note that the Rumack-Matthew nomogram should continue to govern the decision to initiate treatment with NAC and that there is no requirement to remeasure serum [APAP] at NAC initiation. Downloading for patient use is permissible by the authors.
Acute Acetaminophen Overdose

The Rumack-Matthew treatment nomogram for acute acetaminophen overdose has been validated repeatedly but not modified in the last 30 years. The nomogram determines which patients are at no risk of significant liver injury if left untreated and those who are likely to benefit from treatment. Despite its benefit, questions with a significant impact on both patients and health care expenditures remained. Should all acetaminophen overdose patients who require treatment be treated the same? What is the optimal dose and route of acetylcysteine administration? How might individual factors modify the answer to these questions?

Sivilotti, et al presented a modified Rumack-Matthews nomogram that is a result of a broad 20 year retrospective analysis of the Canadian experience with intravenous treatment of acetaminophen overdose. The authors studied more than 1,270 patients treated mostly with a 20-hour course of intravenous acetylcysteine to determine which factors are associated with adverse outcome in these treated patients. While numerous risk factors were evaluated (dose, delay to initiation of treatment, chronic exposure to alcohol, and concurrent ingestion of alcohol with acetaminophen) their modified nomogram only links dose and delay to treatment with the likelihood of severe hepatic injury (defined as developing peak aminotransferase levels ≥ 1,000 IU/L). This nomogram is for acute acetaminophen overdose in nonalcoholic drinkers who will not have delayed absorption (extended release or co-ingestants).

In this new nomogram, physicians calculate risk of hepatotoxicity based on the timed serum concentration and the time that therapy with acetylcysteine begins (see Sivilotti figure). Physicians must be careful to differentiate the need to treat based on the Rumack – Matthew nomogram from the likelihood of significant liver injury based on this Sivilotti risk nomogram. Patients with ≤ 10% risk of hepatotoxicity are eligible for the RDTC protocol. By using this modified nomogram, a large number of patients may be identified who can be treated for 20 hours with intravenous acetylcysteine and discharged. While follow up testing is not required, the authors of this RDTC protocol have chosen to measure aminotransferase levels at the end of treatment for research purposes and to identify those few patients who may develop hepatoxicity (concordant with RDTC anticipated failure rate of 10-20%) .

This protocol was developed by Dr. Ali Raja and Dr. Jeff Holmes with the help of Dr. Michael Lyons and board certified toxicologists Dr. Edward Otten, Dr. Curtis Snook, and Dr. Randall Bond.
**RAPID DIAGNOSIS AND TREATMENT CENTER**

**PHYSICIAN ORDER SHEET**

All applicable orders have been checked.

ORDERS NOT CHECKED ARE NOT TO BE FOLLOWED

Orders are modified according to the medical condition of the patient. All orders are to be dated, timed and signed by a physician. Additional orders may be entered at the end of the order set. If the orders are transcribed in sessions, the transcriber must date, time, and initial in the section marked order noted.

| PAGE | OF | 4 |

### ALLERGIES:

- [ ] None Known
- [ ] Yes, Drug/Reaction:

<table>
<thead>
<tr>
<th>ORDER #</th>
<th>✓</th>
<th><strong>Acute Acetaminophen Overdose</strong></th>
</tr>
</thead>
</table>
| 1. | ✓ | Admit to observation status  
(Please record date / time order noted by nurse) |
| 2. | ✓ | • Take off Order to begin observation by recording Date/Time  
• ED nurse place patient ID sticker on paperwork  
• Begin protocol orders unless RDTC bed imminently available  
• Report to RDTC nurse with completed admission paperwork  
• Transfer to RDTC |
| 3. | ✓ | Diagnosis: Acute acetaminophen overdose |
| 4. | ✓ | Call RDTC MD or PA if: greater than Less than  
| | | SBP 180 90  
| | | DBP 110 50  
| | | HR 120 60  
| | | RR 35 10 |
| 5. | ✓ | Allergies: confirm allergy list and record on designated area pg 1&2 |
| 6. | ✓ | Nursing:  
• Call MD/PA for recurrent vomiting, abdominal pain, altered mental status |
| 7. | ✓ | Ensure peripheral IV access |
| 8. | ✓ | Ensure patient is properly restrained |
| 9. | [ ] | Diet: Regular diet/Advance as tolerated |
| 10. | [ ] | NS 1 liter bolus IV |
| 11. | [ ] | Consult Social Services for: |
| 12. | [ ] | Consult psychiatric emergency services |

---

White -- Chart  Yellow -- Pharmacy  Pink -- Floor Copy  ……………………………………………………………. See Page 2
**RAPID DIAGNOSIS AND TREATMENT CENTER**

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<table>
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<th>ORDER #</th>
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</table>

**ALLERGIES:**

- None Known
- Yes, Drug/Reaction:

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**ORDERS NOT CHECKED ARE NOT TO BE FOLLOWED**

**ORDERS**

**Medications**

13. ✓ Phenergan 12.5 mg IV q 4 hr prn nausea/vomiting

14. ✓ N-acetylcysteine (NAC = Acetadote®) loading dose: 150 mg/kg IV in 200 ml of 0.45% sodium chloride given over 1 hour (if not already given in E.D.)

15. ✓ N-acetylcysteine (NAC = Acetadote®) maintenance dose: 50 mg/kg IV in 500 mL of 0.45% sodium chloride over 4 hours (125 mL/hr), followed by 100 mg/kg in 1000 ml of 0.45% sodium chloride given over 16 hours (62.5 ml/hr)

16. □ Decrease 0.45% sodium chloride volume for patients less than 40 kg and those requiring fluid restriction (administer same dose of NAC but in 50% volume of 0.45% sodium chloride listed in orders #14 and #15)

---

**Home/Other Medications:**

18. □

19. □

20. □

21. □

22. □

**Laboratories**

23. ✓ Initial liver panel if not already done in E.D.

24. ✓ Initial EP1 if not already done in E.D.

25. ✓ Liver panel, EP1, and PT/INR, PTT – Draw these labs 20 hours after the first dose of NAC (Acetadote) given

26. ✓ Acetaminophen level after 20 hours of treatment

---

**Other:**

27. ✓

28. □

29. □

---

**Attending MD Signature:**

**Date:**

**Time:**

---

**(ADMISSION ORDERS ONLY)**

Developed by: Emergency Medicine

Date: 1/1/03

Review Date: 5-24-10

9-27-10

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Orders
**RAPID DIAGNOSIS AND TREATMENT CENTER**

**PHYSICIAN ORDER SHEET**

All applicable orders have been checked.
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---

**ALLERGIES:**
- None Known
- Yes, Drug/Reaction:

---

**ORDERS**

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**Acute Acetaminophen Overdose**

**Acetadote ® Reaction Orders**

<table>
<thead>
<tr>
<th>Reaction #1.</th>
<th>Order</th>
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<tbody>
<tr>
<td>- Flushing</td>
<td>1.</td>
</tr>
<tr>
<td>- Obtain vital signs</td>
<td>✓</td>
</tr>
<tr>
<td>- Notify MD/PA</td>
<td>✓</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reaction #2.</th>
<th>Order</th>
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<tbody>
<tr>
<td>- Hives/Urticaria</td>
<td>1.</td>
</tr>
<tr>
<td>- Obtain vital signs and assess breathing</td>
<td>✓</td>
</tr>
<tr>
<td>- Notify MD/PA</td>
<td>✓</td>
</tr>
<tr>
<td>- Diphenhydramine 1 mg/kg IV (maximum, 50 mg)</td>
<td>✓</td>
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<thead>
<tr>
<th>Reaction #3: Angioedema</th>
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<tbody>
<tr>
<td>1. Stop IV NAC infusion</td>
</tr>
<tr>
<td>2. Notify MD/PA</td>
</tr>
<tr>
<td>3. Diphenhydramine 1 mg/kg IV (maximum, 50 mg)</td>
</tr>
<tr>
<td>4. Obtain vital signs and assess breathing Q15 minutes x 4</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Reaction #4</th>
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<tbody>
<tr>
<td>- Shortness of breath</td>
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<tr>
<td>- Wheezing</td>
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<td>- Hypotension (SBP less than 100)</td>
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<tr>
<th>Reaction #5</th>
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<tbody>
<tr>
<td>1. Stop IV NAC infusion</td>
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<tr>
<td>2. Notify MD/PA</td>
</tr>
<tr>
<td>3. Diphenhydramine 1mg/kg IV (maximum, 50 mg)</td>
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<tr>
<td>4. Albuterol nebulizer 2.5 mg/3 ml INH x 3</td>
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<table>
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<th>Reaction #6</th>
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<tbody>
<tr>
<td>1. Stop IV NAC infusion</td>
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<tr>
<td>2. Notify MD/PA</td>
</tr>
<tr>
<td>3. Diphenhydramine 1mg/kg IV (maximum, 50 mg)</td>
</tr>
<tr>
<td>4. Albuterol nebulizer 2.5 mg/3 ml INH x 3</td>
</tr>
</tbody>
</table>

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**Attending MD Signature:**

Date: __________
Time: __________

(ADMISSION ORDERS ONLY)

**Developed by:** Emergency Medicine
**Date:** 1/1/03
**Review Date:** 5-24-10
### ACETAMINOPHEN OVERDOSE

**RDTM MD/PA Protocol Continuation Checklist**

- PA notes/Dictations must include current RDTC attending name
- Progress Notes documented **every 6 hours** during RDTC admission. If stay is less than 6 hours, there must be at least one progress note.
- Add additional orders to NEW order form, NOT to original order set
- Complete Patient Tracking Form by A-pod desk at shift change

<table>
<thead>
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<th>DATE</th>
<th>TIME</th>
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**Please sign, date, and time all notes**

NOT for admission/discharge notes (these should be STAT dictated)
All PA notes should document attending name

#### Attending Observation Admission Addendum

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#### Progress Note(s)

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#### Attending Observation Discharge Addendum

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*MD Notes*
RAPID DIAGNOSIS AND TREATMENT CENTER

PHYSICIAN ORDER SHEET

All applicable orders have been checked.
ORDERS NOT CHECKED ARE NOT TO BE FOLLOWED

Orders are modified according to the medical condition of the patient. All orders are to be dated, timed and signed by a physician. Additional orders may be entered at the end of the order set. If the orders are transcribed in sessions, the transcriber must date, time, and initial in the section marked order noted.

ALLERGIES:
☐ None Known
☐ Yes, Drug/Reaction:

ORDER #  ✓  Order Noted

1. ☐ DISCHARGE ORDERS
   (Please record date / time order noted by nurse)
   A. Ensure completion of RDTC Tracking Sheet
   B. Discontinue IV
   C. Provide copy of Discharge Information Sheet
   D. Review Discharge Instruction Sheet with patient and discharge to home/PES
   E. Transfer necessary paperwork to PES
   F. Report given to PES
   G. Discharge Diagnosis: 1. ____________________________
      2. ____________________________
   H. Disposition ☐ PES  ☐ Home

2. ☐ HOSPITAL ADMISSION ORDERS
   (Please record date / time order noted by nurse)
   A. Ensure completion of RDTC Tracking Sheet
   B. Convert patient to transitional status unless transferred back to ED for unstable medical condition
   C. Admit to hospital
   D. Bed Type ____________________________
   E. Admitting Service ____________________________
   F. Admitting Attending / Resident MD: ____________________________
   G. Hospital Admission Diagnosis: 1. ____________________________
      2. ____________________________

Attending MD Signature: ____________________________ Date: __________ Time: __________

Orders

Developed by: Emergency Medicine Date 03/17/2005 Review Date 04/25/08