Improved CIBMTR Data Capture through EMR based Powerform

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Conflicts of Interest

- No relevant financial conflicts of interest
Introduction

- The use of electronic data collection tools have increased the accuracy to the data submitted to the CIBMTR
A Little Background

- Our program began in 1996.
- Data capture was performed by various nurses in the beginning.
- First data manager hired in 2002.
But was I doing it right?
2004 Tandem Meeting
A beginning of assessment

- We began collecting GVHD and Performance Status Assessments via paper forms.
- These forms mirrored the data forms that were submitted.
- There were a few issues with this approach.
Our Electronic Medical Record (EMR) has allowed us to create Powerforms for the assessment of GVHD and PS.
# Acute GVHD Screen Grab

## GVHD Assessment Form

**GVHD Assessment**

- **GVHD Assessment time:**
  - [ ] 10 day
  - [ ] 6 month
  - [ ] Young
  - [ ] Clinical Trial
  - [ ] Other

- **Assessment Start Date:**
- **Assessment Stop Date:**

- **Did acute GVHD occur?**
  - [ ] Yes
  - [ ] No
  - [ ] Acute GVHD persists thereafter

- **Date GVHD occurred:**

**Was the diagnosis based on evidence from a biopsy?**

<table>
<thead>
<tr>
<th>Biopsy</th>
<th>Positive</th>
<th>Negative</th>
<th>Inconclusive</th>
<th>Not tested</th>
<th>Other</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>GI Biopsy</td>
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<tr>
<td>Liver Biopsy</td>
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<tr>
<td>Lung Biopsy</td>
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<tr>
<td>Skin Biopsy</td>
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<tr>
<td>Other Biopsy</td>
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</tr>
</tbody>
</table>

**Was the diagnosis based on clinical evidence?**

- [ ] Yes
- [ ] No

**Maximum overall grade of acute GVHD**

- [ ] Grade 0 - No symptoms at all
- [ ] Grade 1
- [ ] Grade 2
- [ ] Grade 3
- [ ] Grade 4

**Severity of Organ Involvement**

- **Skin**
  - Stage 0: No skin GVHD
  - Stage 1: No rash
  - Stage 2: Maculopapular rash, <25% of body surface
  - Stage 3: Erythematous patches, 25-40% of body surface
  - Stage 4: Generalized erythema with bullae formation and desquamation

- **Liver**
  - Stage 0: Bilirubin not attributed to GVHD, Bilirubin < 1.0
  - Stage 1: Bilirubin 1.0-3.0
  - Stage 2: Bilirubin 3.1-5.0
  - Stage 3: Bilirubin > 5.1-15.0
  - Stage 4: Bilirubin > 15.0

- **Lower Intestinal Tract**
  - Stage 0: No diarrhea
  - Stage 1: Diarrhea < 3 stools/day
  - Stage 2: Diarrhea 3-5 stools/day
  - Stage 3: Diarrhea > 5 stools/day or < 100 ml/day
  - Stage 4: Diarrhea > 100 ml/day or > 150 ml/day

- **Upper Intestinal Tract**
  - [ ] Stage 0: No upper gastrointestinal symptoms
  - [ ] Stage 1: Persistent nausea and vomiting

**Other Clinical Organ Involvement**

- [ ] Lung
- [ ] Other

**Specific Therapy Used to treat GVHD**

- [ ] Corticosteroids, systemic
- [ ] Corticosteroids, topical
- [ ] Cyclosporine
- [ ] Tacrolimus (Prograf)
- [ ] Mycophenolate (MMF, CellCept)
- [ ] Milrinone (Repaglinide, Rapamune)
- [ ] Other
Chronic GVHD Screen Grab
Completed GVHD Powerform

* Final Report *

GVHD Assessment Form Entered On: 11/19/2012 12:13
Performed On: 11/12/2012 12:12 by Carraher, Michelle

GVHD Assessment
GVHD Assessment: Other: 2 Year
GVHD Assessment Start Date: 11/17/2011
Acute GVHD occurred: No
GVHD Assessment Stop Date: 11/12/2012

Chronic GVHD
Chronic GVHD occurred: No

GVHD Organ Involvement
Still taking Immunosuppressive agents: No

Result Type: Transplant-Text
Date of Service: November 12, 2012 12:12
Authorization Status: Final
Subject: GVHD Assessment Form
Author or Import Date: Carraher, Michelle on November 19, 2012 12:12
Verified By: Greiner, Robert J on November 19, 2012 13:16
Encounter info: 18251178, Hospital Based Offices, Clinic, 11/19/2012 - 11/20/2012
GVHD Powerform with Corrections

* Final Report *
GVHD Assessment Form Entered On: 03/22/2011 10:47
Performed On: 03/16/2011 10:46 by Carraher, Michelle

GVHD Assessment: 100 day

- GVHD Assessment Start Date: 11/1/2010
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Acute GVHD occurred: Yes
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Date GVHD Occurred: 12/10/2010
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- GVHD Assessment Stop Date: 03/16/2011
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Diagnosis - Clinical Evidence: Yes
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Overall Grade of Acute GVHD: Grade 1
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Acute GVHD still present: No
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Skin Stage: Stage 1 - Maculopapular rash, <25 % of body surface
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Lower Intestinal Tract Stage: Stage 0 - No Gut GVHD
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Upper Intestinal Tract Stage: Stage 0 - No persistent nausea and vomiting
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Liver Stage: Stage 0 - Bilirubin not attributed to GVHD, Bilirubin<2.0
  - previously charted by Carraher, Michelle at 03/22/2011 10:46 (Not Validated)

- Therapy used to treat GVHD: Cyclosporine
  - Carraher, Michelle - 03/22/2011 10:46 (Not Validated)

- Chronic GVHD
  - Chronic GVHD occurred: No
    - Carraher, Michelle - 03/22/2011 10:48 (Not Validated)

- GVHD Organ Involvement
  - Still taking Immunosuppressive agents: Yes
    - Carraher, Michelle - 03/22/2011 10:48 (Not Validated)
Performance Status Screen Grab

ECOG Karnofsky Lansky Status Scales Form

**Performance Status Scale**

- 100 - 0
- 90 - G
- 80 - V
- 70 - O
- 60 - O/C
- 50 - D
- 40 - D/C
- 30 - D/C
- 20 - D/C
- 10 - D/C
- 0 - D/C

**ECOG Performance Scale**

- 0: Normal activity, able to carry on all pre-diagnosis performance without restriction.
- 1: Symptomatic, restricted in physically strenuous activity, but ambulatory and able to carry out work of light or ordinary nature (light housework, office work).
- 2: In bed (50% of the time), ambulatory and capable of all self-care, but unable to carry out any work activities; up and about 50% of waking hours.
- 3: In bed (50% of the time); capable of minimal self-care, confined to bed or chair, 90% of waking hours.
- 4: bedridden; completely disabled, cannot carry on any self-care, totally confined to bed or chair.
- 5: Dead

**Karnofsky Scale** (Use for age > 16 years old)

- 100: Normal, no complaints, no evidence of disease.
- 90: Able to carry on normal activity.
- 80: Normal activity with effort.
- 70: Cannot perform normal activity due to various factors.
- 60: Requires occasional assistance but is able to care for most needs.
- 50: Requires considerable assistance and frequent medical care.
- 40: Disabled, requires special care and assistance.
- 30: Severely disabled; hospitalization indicated, although death not imminent.
- 20: Very sick; death expected.
- 10: Terminally ill, total process progressing rapidly.
- 0: Dead

**Lansky Scale** (Use for age < or = 16 years old)

- 100: Fully active.
- 90: Minor restrictions in physically strenuous play.
- 80: Partially restricted in strenuous play, but no more restricted in all other activities.
- 70: Both severe restriction and of less time spent in active play.
- 60: Ambulatory up to 50% of time (limited active play with assistance/ supervision).
- 50: Considerable assistance required for all active play, fully able to engage in quiet play.
- 40: Able to engage in quiet activities.
- 30: Needs considerable assistance for quiet activities.
- 20: Limited to very passive activity initiated by others, e.g., TV.
- 10: Completely disabled, not even passive play.
- 0: Dead
* Final Report *

ECOG Karnofsky Lansky Status Scales Form Entered On: 11/19/2012 12:12
Performed On: 11/12/2012 12:12 by Carraher, Michelle

ECOG Karnofsky Lansky Status Scales
Performance Status Scale Assessment Time: Other: 2 Year
Eastern Cooperative Oncology Group: Eastern Cooperative Oncology Group
Karnofsky Scale: 100- Normal; no complaints; no evidence of disease

Carraher, Michelle - 11/19/2012 12:12 (Not Validated)

Result Type: Transplant-Text
Date of Service: November 12, 2012 12:12
Authorization Status: Final
Subject: ECOG Karnofsky Lansky Status Scales Form
Author or Import Date: Carraher, Michelle on November 19, 2012 12:12
Verified By: Greiner, Robert J on November 19, 2012 13:15
Encounter info: 18251178, Hospital Based Offices, Clinic, 11/19/2012 - 11/20/2012
CIBMTR Audit Results

- NMDP Audit in 2004
- Overall Error Rate of 1.2%
- Critical Field Error Rate of 2.8%
  - Performance Status is 47.9% of these
  - GVHD is 14.6% of these
CIBMTR Audit Results

- CIBMTR Audit in 2008
- Overall Error Rate of 1.7%
- Critical Field Error Rate 3.7%
  - Performance Status is 24.5% of these
  - GVHD is 3.8% of these
CIBMTR Audit Results

- CIBMTR Audit in 2012
- Overall Error Rate of 0.7%
- Critical Field Error Rate of 0.8%
  - Performance Status is 4.3% of these
  - GVHD is 4.3% of these
Conclusion

- The electronic data capture of GVHD and performance status has decreased our audit error rate.
- It is easier for the physicians.
- It becomes a permanent part of the patient’s medical record.
Questions