# Communication from Home Health Care to Primary Care: Completeness of an Interoperability Data Standard

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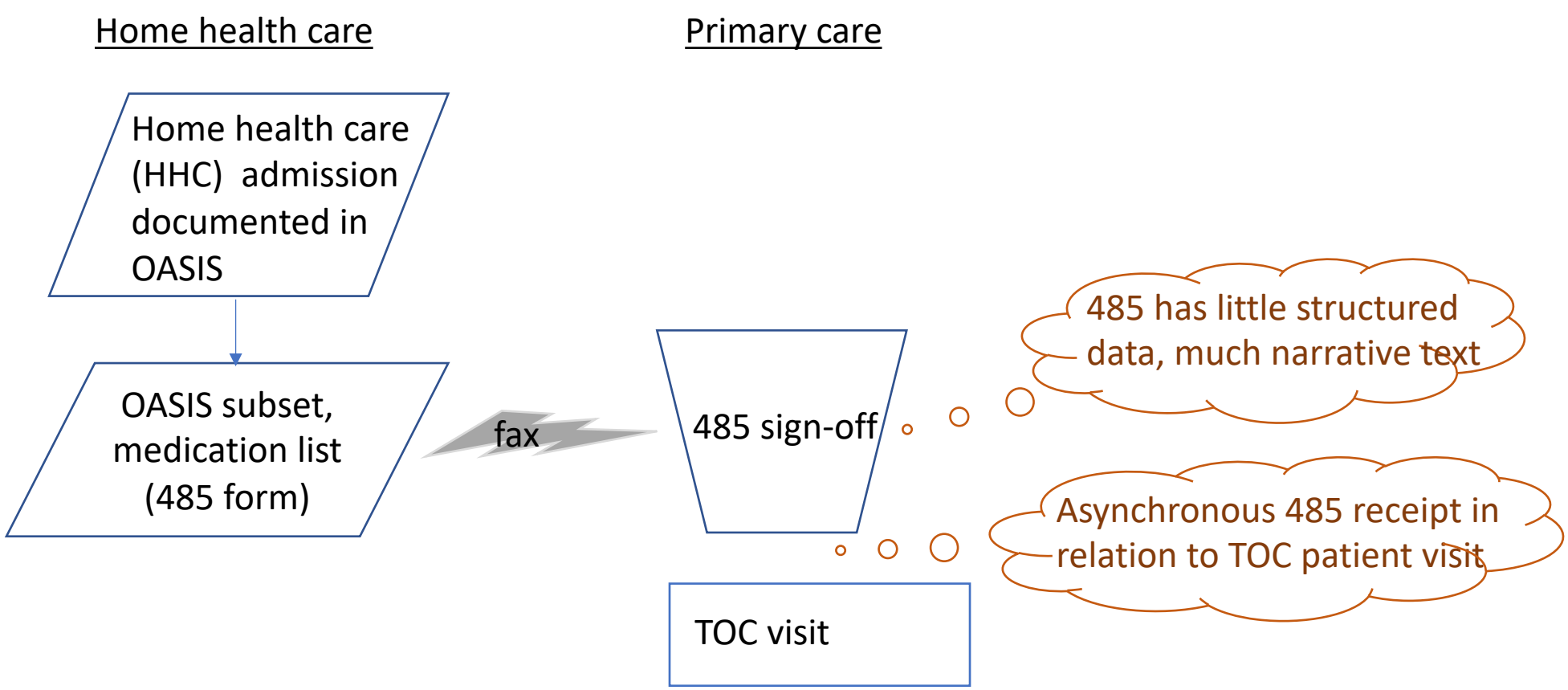
# The Challenge:
# Data Communication along the Transitions of Care

- During 1st (admission) visit home health care (HHC) clinicians assess, document patient cognitive & functional capabilities, safety in CMS's Outcome and Assessment Information Set (OASIS)
- HHC patients see their primary care team within 2 weeks of hospital discharge
  - Evidence-based practice, CMS reimbursed
  - Patients with medical and/or psychosocial problems requiring at least moderate medical decision-making receive services
  - Data elements needed for **Transition of Care (TOC) visit** not specified by CMS
- Lack of HHC and primary care EHR interoperability promulgates information siloes resulting in
  - Potential missed clinical opportunities (not having information in right place at right time): could impact patient outcomes, reimbursement
  - Lack of data for research e.g., re-hospitalization risk predictive analytics

# Current Process



# Objective

- Data standards may address needed HHC to primary care interoperability
- Identify parsimonious HHC data set to be communicated to primary care for TOC visit
- Investigate LOINC completeness for HHC data to be communicated

# Methods

- Deductive qualitative analysis in 3 steps
  - Authors' perspective: primary care physician knowledgeable about HHC OASIS data who was considering HHC information primary care team might need
  - Map OASIS to TOC to identify HHC data available for the TOC visit
  - Survey TOC clinicians to elicit input on a parsimonious set of OASIS data to be communicated
  - Map parsimonious data set to LOINC and assess LOINC completeness

# TOC

- Absence of CMS TOC document: Used primary care medical society TOC
- Focused on TOC activities, decisions requiring data
- TOC contained 9 clinical information topics distributed among 3 domains
  - 4 clinical status topics
    - Obtain and Review Discharge Information
    - Review Need for Follow-up on Pending Testing or Treatment
    - Interact with Other Clinicians who will Assume or Resume Care of the Patient's System-specific Conditions
    - Establish or Re-establish Referrals for Specialized Care
  - 2 functional status topics
    - Educate the Patient and/or Caregiver to Support Self Management, and Activities of Daily Living (ADL)
    - Provide Assessment and Support for Treatment Adherence and Medication Management
  - 3 service needs topics
    - Identify Available Community and Health Resources
    - Facilitate Access to Services Needed by the Patient and/or Caregivers
    - Assist in Scheduling Follow-up with Other Health Services

# OASIS-D

- Retained 51 patient health questions from 68 admission questions
- All question responses structured (e.g., categorical, typically 3-6 point scales
- 51 clinical information classes distributed among 4 domains
  - Clinical status: 34 classes e.g., Medication Issues, body systems (including emotional and behavioral), and Hospitalization Risk
  - Functional status: 13 classes e.g., ADL/IADL, Self Management
  - Home safety: 2 classes - Living Arrangements (regarding presence of other people), Falls Risk
  - Service needs: 2 classes focus on care management related to supervision needed for safety

# LOINC

- International data standard
- Includes OASIS terms

# Survey TOC Clinicians to Identify Parsimonious OASIS Data Set for TOC Visit

- Develop, test, administer focus group instrument with reduced number of OASIS questions for the survey instrument
- Develop draft survey instrument, elicit feedback from 2 focus groups
- Survey instrument refinement, testing, finalization, administration
- Retained survey questions => parsimonious data set

# Map Parsimonious Data Set to LOINC, Assess LOINC Completeness

- Compare parsimonious data set terms to LOINC
  - Searched LOINC on loinc.org website
  - Confirmed with search of CMS Data Element Library Health IT Workgroup's spreadsheet
- Matching indicates LOINC completeness relative to TOC, OASIS
- Incompleteness indicates areas for LOINC code recommendation development

# Results

# Map OASIS to Transition of Care

- All 51 OASIS questions mapped to 6 TOC topics
- 3 TOC service needs topics were unmapped
  - Interact with Other Clinicians who will Assume or Resume Care of the Patient's System-specific Conditions
  - Assist in Scheduling Follow-up with Other Health Services
  - Facilitate Access to Services Needed by the Patient and/or Caregivers

# Develop Survey of TOC Clinicians to Identify Parsimonious OASIS Data Set for TOC

- 2 focus groups for survey development
  - Nurse informaticians suggested adding questions to communicate patient baseline status to enable primary care clinicians to discern trends
  - Physicians
    - Question stem should communicate information available in response choices
    - Survey response should be whether the data is needed or not needed
- Neither focus group identified questions to be removed

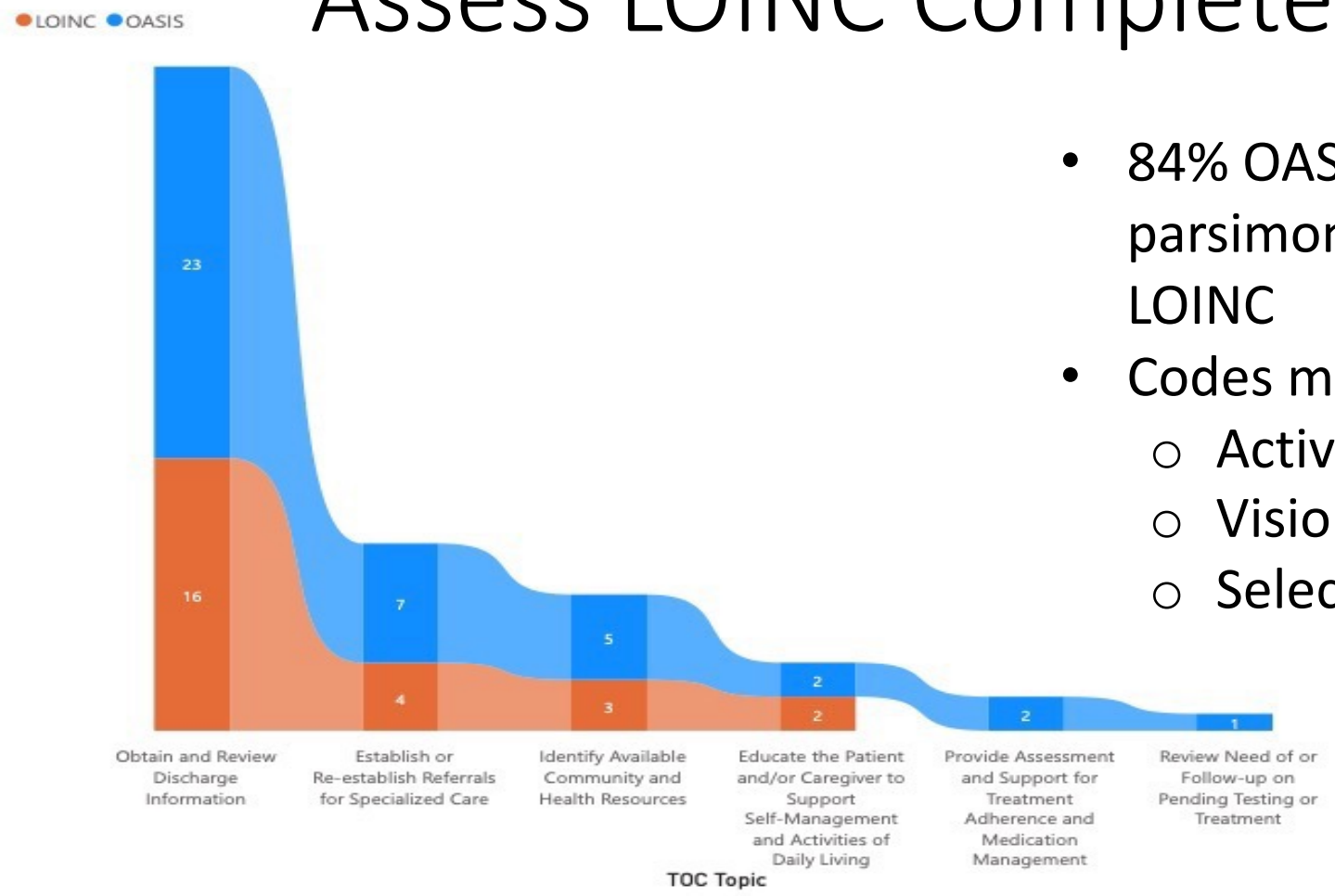
# Survey Administration

- Survey available to ~75 informatics conference attendees
- 12 eligible physicians completed the survey
  - Typical respondent:
    - male
    - > 56 years
    - >20 years clinical practice
    - works with care coordination staff
    - uses Epic

# Survey Responses

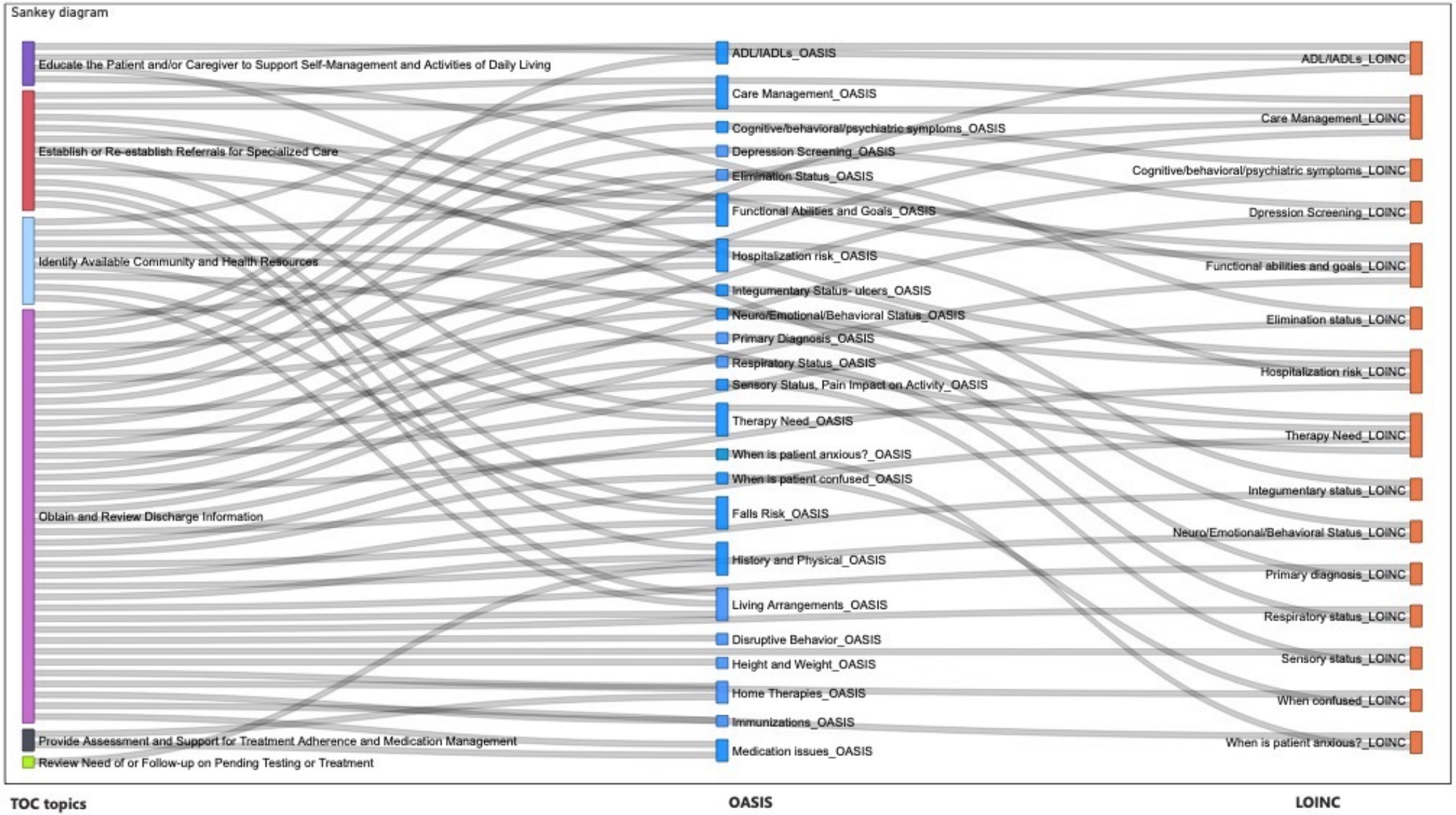
- Almost all respondents chose to retain each of 33 OASIS-related concepts
- Question asking ‘how would this information improve patient care’ replies:
  - ‘reduce hospital use’ (11)
  - ‘help identify management needs’ (10)
  - ‘reduce resource effort for contacting patients’ (8)
  - Written in responses from 2 respondents:
    - ‘reduce need for duplicate testing’
    - ‘reduce need to redocument/ask during the visit’
- Question: where HHC data should be displayed in EHR
  - Consensus: a separate screen

# Map Parsimonious Data Set to LOINC, Assess LOINC Completeness




- 84% OASIS questions in parsimonious data set mapped to LOINC
- Codes missing from LOINC:
  - Active diagnosis
  - Vision
  - Selected pressure ulcer info

Stacked Bar Graph of Count of LOINC Codes and OASIS Concepts Mapped to Transition of Care Topics




Sankey Diagram Illustrating Linkages Among Transition of Care Topics, OASIS Concepts, and LOINC Codes

# Discussion

- HHC data did not map to 3 TOC service needs topics suggests an information deficit for TOC visit decision-making
- Parsimonious dataset of 33 items
  - 40% reduction of OASIS questions
  - Almost completely incorporates Bick, Dowding's 23 hospitalization risk factors
  - Nearly complete mapping to LOINC
    - Supports use of LOINC to electronically transmit HHC patient assessment data to primary care in preparation for TOC visit

# Potential benefits of improved transition of care interoperability

- Clinician benefits
  - Inclusion of HHC data into primary care EHRs as standardized, structured data
  - Enable presentation of information in TOC at right time
  - Allow application of data management tools thereby supporting clinician decision-making
- Patient benefits
  - Address their individual needs with patient-centered approach
  - Mitigate hospital readmissions
- Health care organization benefits
  - Financial: apply these approaches to mitigate hospitalizations, hospital readmissions
  - Facilitate data analytics: decision support, predictive modeling, and machine learning

**Future Research:**

- Assess the feasibility of this recommendation
- Examine impact on primary care workflow, patient outcomes

# Limitations

- TOC guidance used in analysis
  - Contained information topics which tend to be broader than data elements
  - Required interpretation by authors
  - **Future research:** incorporate TOCs from diverse settings to improve specificity of TOC data elements

Thank you