

Development and feasibility-testing of a computerized psychotropic medication algorithm in a CMHC

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Rationale behind the Texas Medication Algorithm Project: TMAP

- An efflorescence of new medications in psychiatry
- Doctors left to their own devices

Computerizing the Texas Medication Algorithm Project: CompTMAP

TMAP Algorithms and their development: Diagrams of strategy and tactics

- Conferences of national experts
- Input from: MDs who serve
 Patients
 Families

Computerizing the Texas Medication Algorithm Project: CompTMAP

The TMAP study:

- > 1500 patients, 17 sites at 8 CMHCs across Texas
- Algorithm guided treatment vs Treatment as Usual
- 3 years, \$ 6.5 million, and TDMHMR mandating the use of guidelines

Strategies for the Treatment of Major Depression (Nonpsychotic) version 3

Stage 1

Monotherapy
SSRI_‡, BUP_{SR}, NEF,
VLF_{XR} or MRT

Partial
Response or
Nonresponse

Remission

Stage 1A

Augmentation

Response

Continuation

Partial
Response

Partial Response or
Nonresponse

Stage 2

Monotherapy
SSRI_‡, BUP_{SR}, NEF,
TCA, VLF_{XR} or MRT

Partial
Response or
Nonresponse

Remission

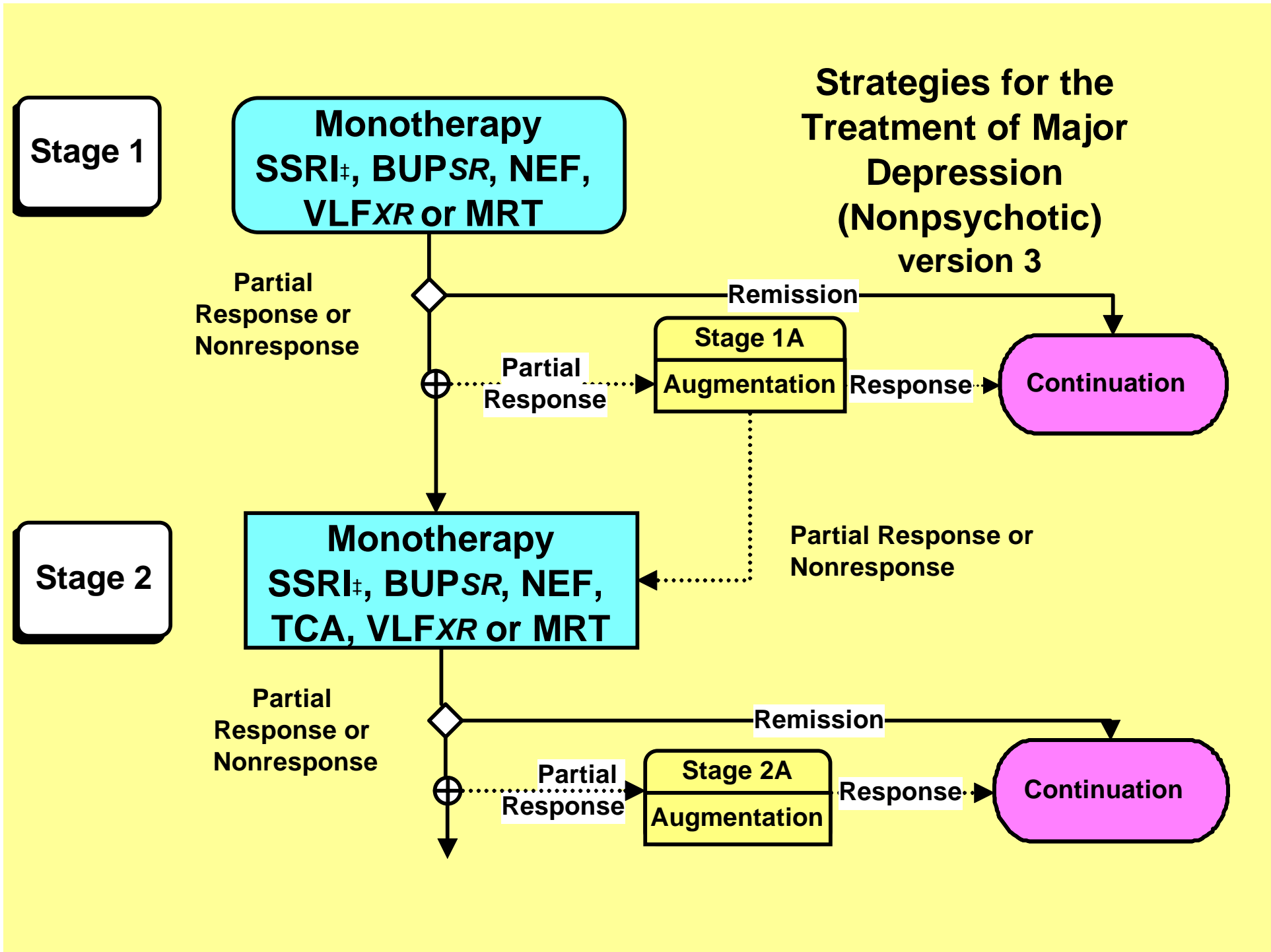
Stage 2A

Augmentation

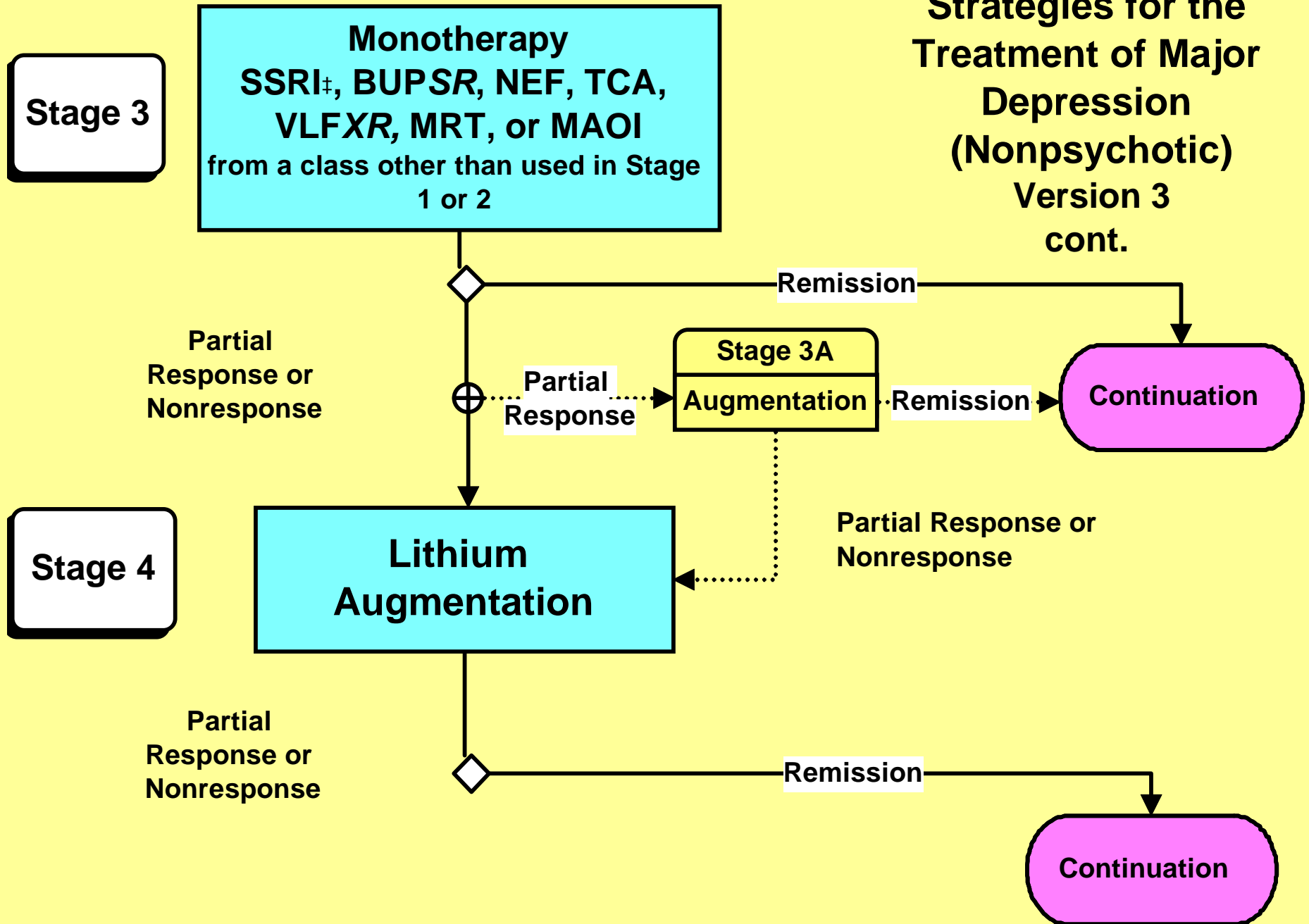
Response

Continuation

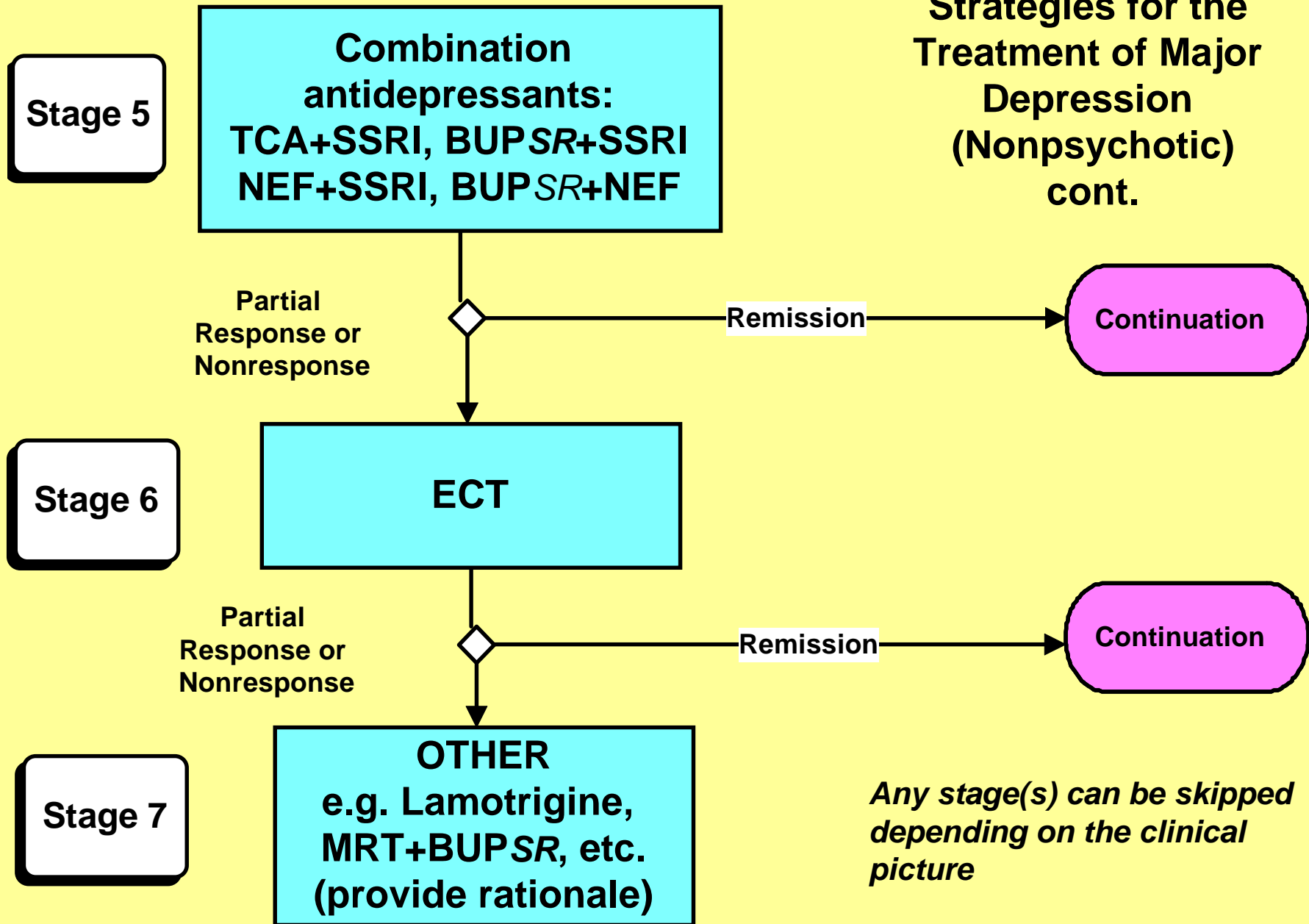
Partial
Response



Strategies for the Treatment of Major Depression (Nonpsychotic) Version 3 cont.



Strategies for the Treatment of Major Depression (Nonpsychotic) cont.

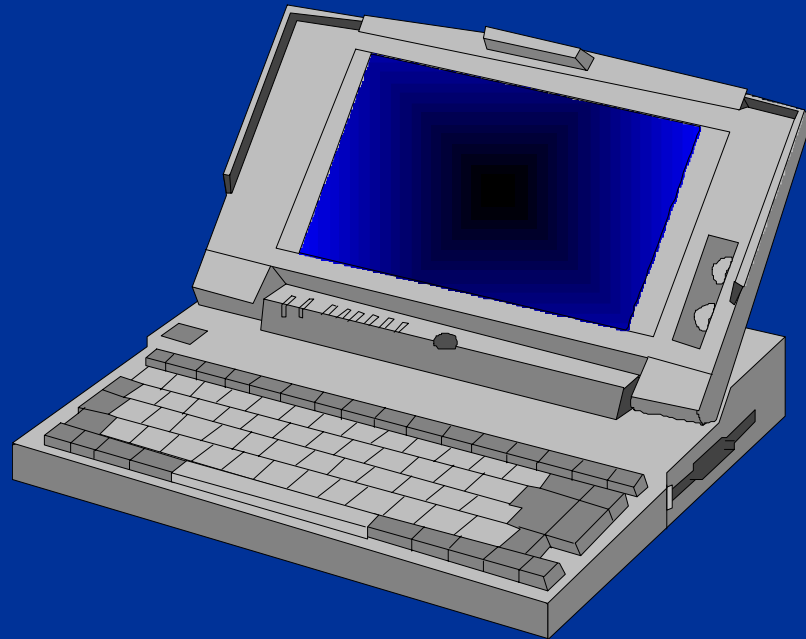


Computerizing the Texas Medication Algorithm Project: CompTMAP

Problems with paper pencil guidelines:

- Read and study
- Research coordinator follow up
- Regular expert availability by telephone
- Difficult to modify in real time with scientific progress
- Continuing expense of the above in time and dollars

Advantages of Computerized Systems



- Improves physician compliance with guidelines
- Reduces medication errors
- Reduces time to reach therapeutic control
- Improves follow-up and preventative care

Trivedi, M.H., Kern, J. K., Baker, S.M., Altshuler, K.Z. Computerizing Medication Algorithms and Decision Support Systems for Major Psychiatric Disorders. [Journal of Psychiatric Practice](#), 6:237-246, 2000.

Trivedi MH, Kern JK, Voegtle TM, Baker SM, Altshular KZ. Computerized Medical Algorithms in Behavioral Health Care. [Behavioral Health Care Informatics](#) in press

CompTMAP

An Assessment Tool

- Prompts physician to assess symptoms, functioning, side effect burden, medication compliance, and suicidal/homicidal ideation at each visit.
- Facilitates a physician's decision by gathering and retrieving patient information:
 - allergies, age, lab tests, clinical and prescription history

CompTMAP

A Clinical Recording Tool

- Automatically records what was done at each visit.
- Records and displays medication doses and clinical progress in easy-to-read graphs
- Patient status and progress available at a glance at the time of care
- Creates an automatic progress note to document details of visit

...and Documentation System

- Allows physician to record additional information that becomes part of patients' computerized record
- Can be printed (if necessary) for a paper chart
- Reduces paperwork burden by documenting and printing patient orders, such as prescriptions

CompTMAP-

A Treatment Decision-Support Tool

- Treatment tool guided by evidence-based research; has on screen prompts
- Provides strategies for treatment of primary syndrome, associated symptoms, and side effects
- Provides educational information regarding medication options, including new medications

CompTMAP- Administrative Efficiency

- Allows access based on security level
- Supports online access to a main database for automatic upgrades
- Designed to interface with current electronic infrastructure and available databases

UTSW Software

A Treatment Visit

- Entry into the system
- Patient Directory
- Assessment Screen
- Treatment Selection
- Prescription
- Printing
 - prescription
 - auto-note
 - schedule for next visit

Reliability Testing of CompTMAP

- **Phase 1:**
 - Development of rules engine and database
- **Phase 2A:**
 - “In-house” beta testing
- **Phase 2B:**
 - Entry of retrospective chart data
- **Phase 3: field testing**
 - Extended review
 - Field trial

Preliminary Findings

- **Extended review**
 - 3 MDs, ave. 2-3 patients/wk for 2-3 weeks
 - Ease of use
 - Usefulness
- **Field trial**
 - 4 MDs, ave. 10-14 patients/week for 4-6 weeks
 - Ease of use
 - Usefulness

Physician Ease of Use Survey

- **Global impression**
 - How easy was the software to use?
- **Software ergonomics**
 - How easy was it for you to find what you were looking for?
- **Visit mechanics**
 - How easy is it to use the computer in front of patients?

Physician Usefulness Survey

- **Global impression**
 - Overall, how useful was the software program?
- **Treatment information**
 - Did you find the treatment recommendations useful?
- **Visit mechanics**
 - How useful was the software program in following a patient's status over time?

Expected Benefits

- **↑ efficiency of clinicians time**
- **More accurate documentation**
- **QA/QI reports**
- **Continuity of care**
- **Overall decrease in healthcare costs**
- **Better patient outcomes**

Challenges

- **Changing behaviors**
- **MD acceptance**
- **Staff acceptance**
- **Patient acceptance**
- **“Technophobics”**
- **Interfacing with EMRs**

Project Status

- **Current**
 - Rolling out each algorithm separately
 - Rolling out one site at a time
 - Over 300 patient charts entered
- **Future**
 - Development of consumer survey
 - Reorganization of treatment team
 - Integration with other electronic systems (pharmacy, psychiatric emergency services, etc.)

Research Plan

- **Development of prescribing profiles**
- **Impact of newer medications on care**
- **Physician adherence to the algorithms**
- **Impact of computerization on:**
 - Criminal justice involvement
 - Use of emergency services
 - Hospital days used
 - Patient adherence
 - Psychosocial functioning