U.S. Department
of Veterans Affairs

# Cloud CPRS

improving efficiency, user satisfaction, and
veteran access to care via
cloud streaming of CPRS
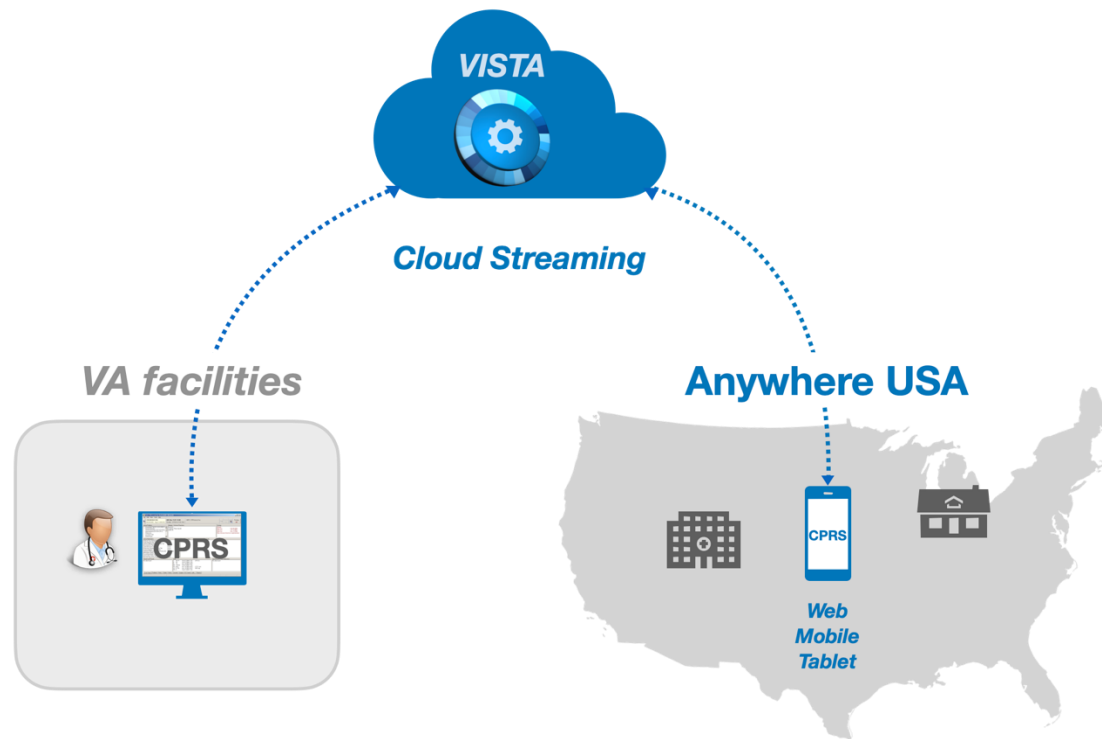
Kathleen Kendle, MD FACP

Clinical Informaticist

Valley Coastal Bend VAMC

**VISTA**

**Cloud Streaming**

**VA facilities**

**Anywhere USA**

**CPRS**

**CPRS**

**Web Mobile Tablet**

**NETFLIX**

*Cloud VISTA leverages AppStream technology to transform CPRS into a web streaming service.  This is the same technology that streams Netflix into hundreds of millions of living rooms across the USA every day.*

**Powered by VISTA**
cloudvista.github.io

# Cloud CPRS:  Texas VAMC experience

- Valley Coastal Bend VAMC experience with Cloud CPRS
  - Efficiency improvement
  - Improved access to veteran care
  - Cost reduction
- Improvement on Clinicians and Patient experience

*Synthesis of Research Paper* ■

# Ten Commandments for Effective Clinical Decision Support: Making the Practice of Evidence-based Medicine a Reality

DAVID W. BATES, MD, MSc, GILAD J. KUPERMAN, MD, PhD, SAMUEL WANG, MD, PhD, TEJAL GANDHI, MD, MPH, ANNE KITTLER, BA, LYNN VOLK, MHS, CYNTHIA SPURR, RN, MBA, RAMIN KHORASANI, MD, MILENKO TANASIJEVIC, MD, BLACKFORD MIDDLETON, MD, MSc, MPH
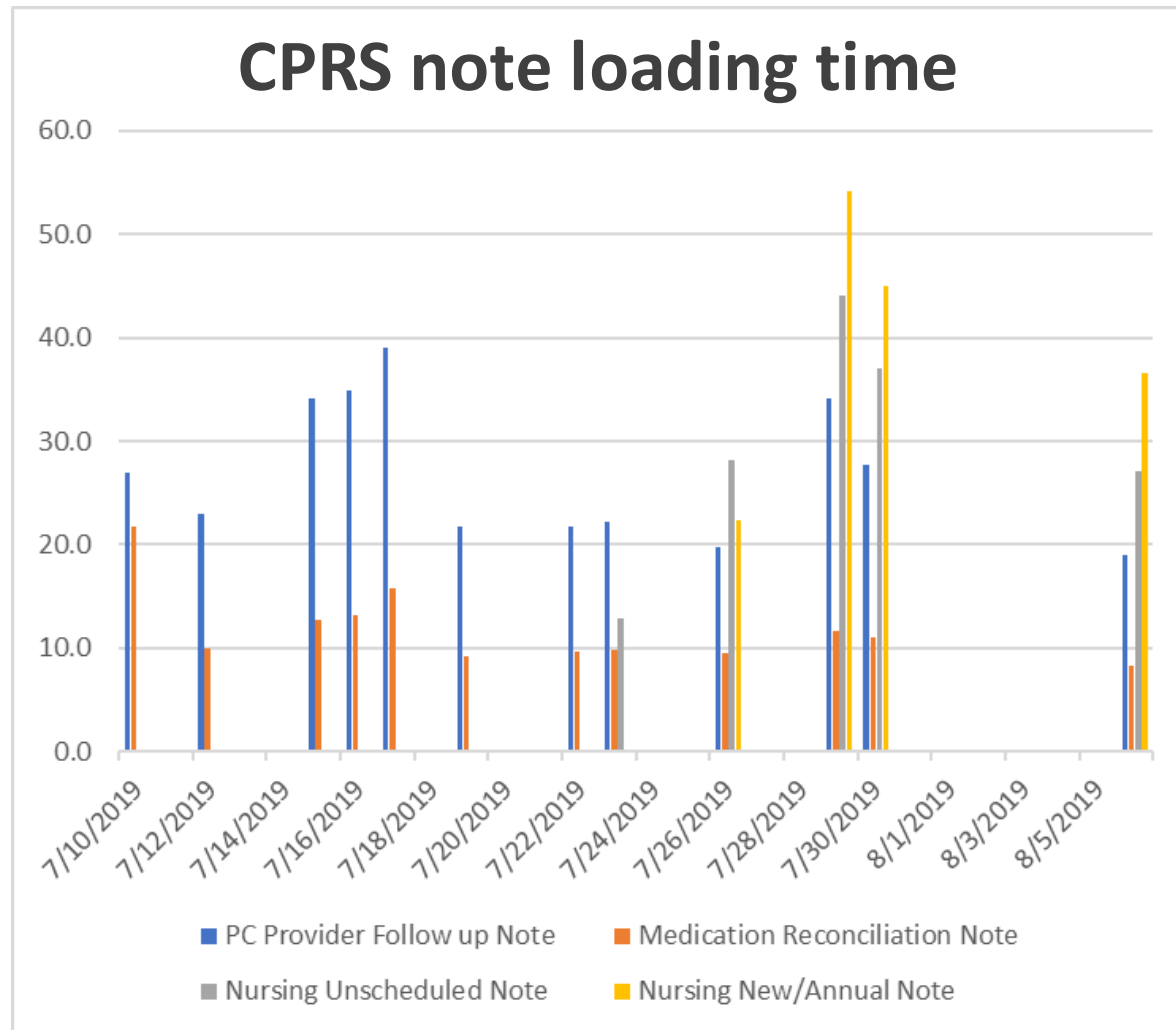
# Ten Commandments For Effective CDS [307]
## ([Bates, JAMIA 2003](#))

1. **Speed is everything** – expect sub-second latency ← Rule #1: *Speed*
2. **Anticipate needs and deliver in real time** – e.g. showing relevant labs with med orders
3. **Fit into the user's workflow** – external tools not as good as those at POC
4. **Little things can make a big difference** – "usability matters – a lot", "make it easy to do the right thing"
5. **Physicians resist stopping** – don't tell docs to not do something without offering an alternative

# CPRS: VA's main clinical decision support tool



CPRS note loading time
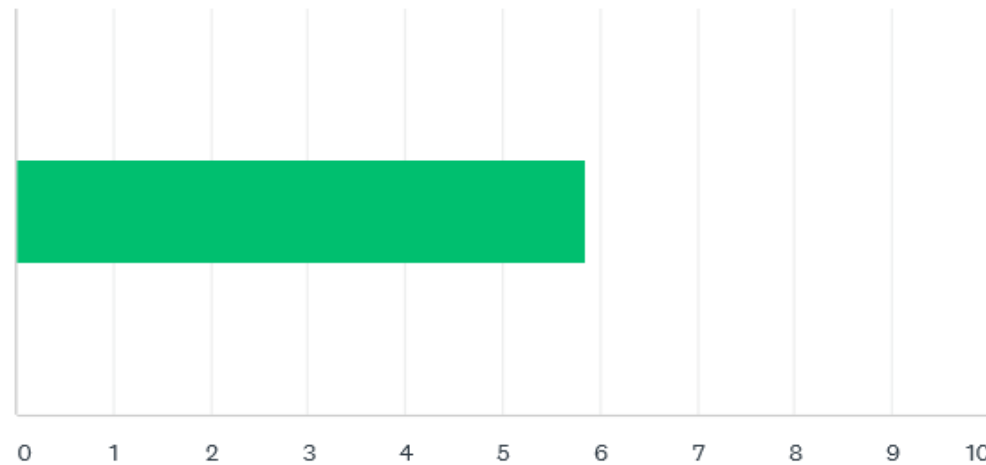
Average note loading time 27 seconds

# CPRS: Survey on speed



Q1

On a scale of 1-10 (1 worst, 10 the best), how satisfied are you with the speed of CPRS in completing your work?
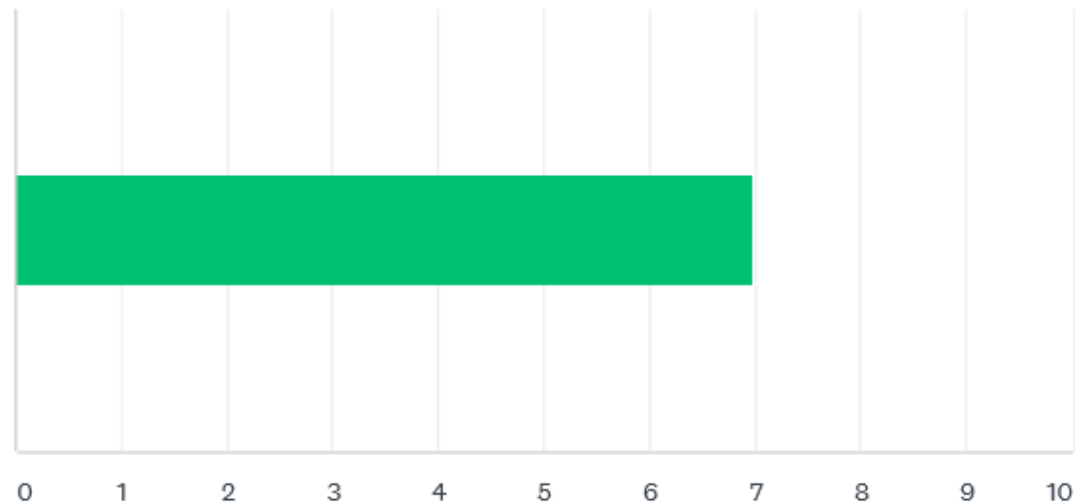
Answered: 100    Skipped: 0

# CPRS: Survey on speed

On a scale of 1-10, (1 no impact, 10 major impact) does the speed of CPRS have a substantial impact on your work-life satisfaction?
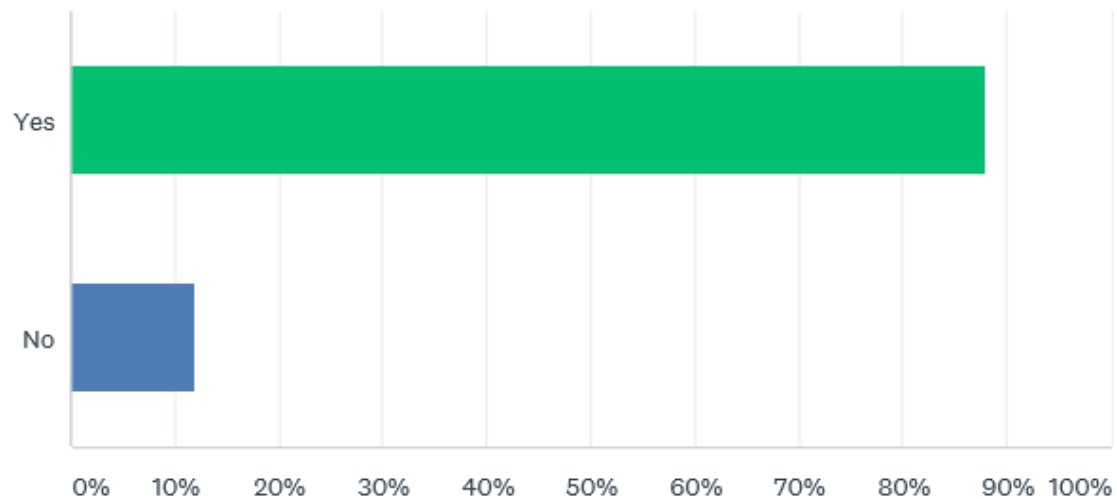
Answered: 100    Skipped: 0

# CPRS: Survey on speed



Do you think increasing the speed of CPRS improves Veterans access to care?

Answered: 100    Skipped: 0

# CPRS: Survey on speed

| ANSWER CHOICES | RESPONSES | |
|---|---|---|
| MD | 10.99% | 10 |
| NP | 3.30% | 3 |
| PA | 0.00% | 0 |
| RN | 24.18% | 22 |
| PharmD | 3.30% | 3 |
| LVN | 10.99% | 10 |
| MSA | 13.19% | 12 |
| Social Worker | 10.99% | 10 |
| Psychologist | 12.09% | 11 |
| RD | 3.30% | 3 |
| Other | 7.69% | 7 |
| TOTAL | | 91 |

# Cloud Streaming CPRS: 10X speed improvement

## Cloud CPRS note loading time

| Date | PC Provider Follow up Note | Nursing Unscheduled Note |
|---|---|---|
| 21-Feb | 3.5 | 4.5 |
| 21-Feb | 1.9 | 4.1 |
| 3-Mar | 2.0 | 3 |
| 3-Mar | 1.1 | 3.8 |
| | 2 | 3.85 |

**Average note loading time is 2 seconds**

**10X speed improvement!**

# Cloud Streaming CPRS:   10X speed improvement

## Cloud Streaming CPRS improves efficiency, lowers costs, and improves veteran access to care

### Cloud CPRS -  Clinical Efficiency Improvement and Cost Avoidance

| Clinician type | CPRS note lag (sec) | notes per day (per provider) | count of clinician type (FTE) | annual days at work | annual time lost to note lag (sec) | annual time lost to note lag (hours) | annual loss of work (FTE) | Salary + Benefits (per FTE) | Cost to VHA of lost work |
|---|---|---|---|---|---|---|---|---|---|
| Physician | 25 | 13 | 100 | 240 | 7800000 | 2167 | 1.2 | 180,000 | $216,667 |
| PharmD | 30 | 10 | 20 | 240 | 1440000 | 400 | 0.2 | 90,000 | $20,000 |
| Nursing | 35 | 13 | 250 | 240 | 27300000 | 7583 | 4.2 | 70,000 | $294,907 |
| Estimated cost of lost work due to CPRS note lag | | | | | | | | | $531,574 |