Implementing a
Clinical Decision Support (CDS) System

The complexity of the modern medicine, the high burden of chronic diseases, the aging Veteran population, patient expectations, and the VHA's mission to provide the highest quality care in a safe and efficient manner demand *effective cognitive support for the clinicians at the system level*.

Otherwise, we are working with a glorified "paper chart" called "EHR."

The Challenge

The Cerner EHR and CPRS offer virtually NO Clinical Decision Support at the point-of-care.

A built-in CDS, if ever, maybe 10 years away!

Can VHA provide a CDS sooner?

"CDS: Charting the Path Forward"
April 2021

CDS: Tangible and Intangible Benefits, and Return on Investment (ROI)

<u>Reduce clinical errors</u>: A well designed CDS empowers clinicians to provide high-quality care with less effort and less burn-out!

A well designed CDS identifies, thus prevents, clinical errors *before* they can harm the patient.
- The CDS PROACTIVELY provides clinical intelligence at the point of care, AND
- Reduces the "cognitive burden of scut-work" thus frees-up the providers to focus on the real patient care issues.
- Reduce the administrative overhead of RCA and peer-reviews.
- Reduce the risk of lawsuits and relates costs (more below).

<u>Increase Productivity and Efficiency</u>: Using automation, a well-designed CDS can significantly reduce the non-value-added work.

According to American Medical Association (AMA) studies, providers spend up to two-thirds of their patient care time on the EHR-related activities.

- Most of the clinician's time is spent on searching and organizing data for clinical decision making.
- The EHR challenges, without help of a CDS, have much greater negative impact on the technology-challenged clinicians.
- A CDS can reduce the unnecessary procedures and consults.
- Positive impact on the third-party reimbursement and VERA.

<u>Reduce lawsuits and the related costs</u>:

In addition to the human suffering and negative publicity, there is significant malpractice cost:

- The average cost to settle/resolve a lawsuit is estimated to be $300K to $400K. Preventing just one lawsuit pays for the VAMC's CDS-related costs for many years.

- "[VA]…has paid out approximately $100 million a year to settle more than 3,000 veterans medical malpractice claims" per <u>Veteran Medical Malpractice at VA Hospitals (lawyersandsettlements.com)</u>.

- "[VA]…paid out roughly $845 million in malpractice cases during the past 10 years…" <u>VA's malpractice tab: $845M in 10 years (daytondailynews.com)</u>.

<u>Better continuity of care with staff retention and high morale</u>:

There is a national shortage of providers and nurses in all fields. Compared to the private sector, VHA has pay-disadvantage. Many VAMCs in certain geographic areas have great difficulty hiring and retaining staff. Therefore, recruitment and retention are an extremely important aspect of a sustainable healthcare delivery system.

It takes about one year to hire, and costs 2x the salary to replace a provider. Further, it takes about one year to achieve the full productivity level for a new clinician. This translates to significant negative impact on the productivity for up to two years.

<u>Greater patient and provider satisfaction</u>:

More eye-contact time which builds trusting relationship resulting in better patient experience and compliance.

The "No-Brainer" Cost Analysis

The current annual licensing fee for Brillians license is $0.75 per unique veteran. Compare that to "per minute cost" of the clinic time.

The approximate Per-minute Cost of the Physician's time based on 46 weeks/year, 40 hours per week. Add 28% to the salary as the cost of the various benefits.

- Primary Care physicians (salary $200K/year + benefits)   = $2.25
- Specialist (most specialties. salary $250K/ year + benefits)   = $3.00
- Specialist (some specialties salary $300K+/ year + benefits)   = $3.50

For sake of simplicity, assume the **average cost is: $2.75 per minute.** (The actual cost of the clinic time much higher if we include support staff's salaries, space, utilities, house-keeping costs, etc.)

The Breaks-even Point: If Brillians saved just one minute/veteran/year**,** it pays for the licensing fee four times over!

The actual time-savings are much higher as detailed in the two tables below. This is in addition to the ROI of the many tangible and intangible benefits noted earlier.

For example, searching for a procedure report in CPRS may easily take 5-10 minutes. Brillians can find the same in 2 seconds! Multiply that by thousands of searches and many other time-saving events per VAMC per years. It is evident that Brillians is hugely cost effective.

Brillians: A comprehensive CDS designed for VA's VistA system

The market research shows that there is no other CDS product which is designed to work with the VistA system. "Brillians" meets the core criteria:

1. Comprehensive – *it includes nearly every* CDS *feature* desired by the clinicians. Piece-meal solutions, which address one need, do not work for the busy clinical users.

2. ONE App, one login and consistent UI for all the features (see features list later).

3. VistA/CPRS native. Developed for, field tested, and well-liked by the VHA clinicians. Brillians is currently licensed by about 24 VAMCs (16% of the 150 VAMCs).

4. Mature – about 15-year experience in the live-patient-care settings in VHA. It has gone through countless "build–feedback–learn–improve" cycles.

5. Under active development: The existing features are updated, and the new ones are added regularly based on the user feedback.

6. Written in the modern, object-oriented programming language called "Delphi" (the same is used to program CPRS).

7. Fully compliant with VHA's information security requirements including 2-factor login. VA TRM approved (Brillians (va.gov)).

8. Easy to implement: It does NOT require any new hardware, databases, webservers, or any new IT resources. (The App is installed in a network folder of the VAMC's choice.)

9. No changes to the VistA system (no new MUMPS code/changes, etc.). If the facility can run CPRS, they can run Brillians without any changes to their hardware or software systems.

10. Easy to use: Designed with CPRS users in mind to reduce the learning curve. From ground up, Brillians is designed to meet VHA clinicians' needs. It follows the Windows UI conventions, so Windows users already feel at home.

Brillians: Partial List of Features and Benefits

Key Features	Benefits	Brillians vs CPRS/manual
Automated Data Analysis **Prevents clinical errors**	Brillians automatically identifies and displays a list of the clinical issues that need clinician's attention. See the link below to understand how Brillians reduces the risk of clinical errors: Brillians Advisories: Logic and Scope | SupraVISTA	Not available in CPRS. **CPRS**: 4+ hours manually or impossible. **Brillians**: 30 seconds at point of care. For each issue, one-click provides enough details to make clinical decisions without searching the medical record.
System, disease, and specialty centric **"Views" of clinical data**	One click displays all the relevant information about the given body system, disease, or the specialty on one page. Users and VAMC can add personal and shared Views for special needs.	Not available in CPRS. **CPRS**: 10-15 minutes to manually find relevant data on different tabs. **Brillians**: 2 seconds.
Many search options including Google-like **Keyword Search**	Instantly find information by searching a large subset of recent clinical data which is silo'ed on multiple CPRS tabs.	Not available in CPRS. Manual search: 10+ mins. **Brillians**: instant results
VA and DoD Remote data. **Download and Search remote data from multiple medical centers within seconds**	Within seconds, you can download data from MULTIPLE VAMCs for N years. Data is displayed on CPRS like tabs. User can perform "Keyword Search" on the entire downloaded data.	Finding remote data in **JLV** can be cumbersome. **Brillians** supports **google-like search of the remote data**. Download and search remote data in about 30 seconds.
VA local and national **Formulary Search**	Why call and wait for the Pharmacist? Instantly find items in VA formulary. Search by partial name of the item.	Not available in CPRS. Manual: Phone call to Pharmacy. Two to ?? minutes. **Brillians**: Instant results
Creative **Lab Review**	Efficiently find and review abnormal labs for past N years. Review common lab profiles with one click.	**CPRS** – cannot display abnormal labs ONLY. **Brillians**-filter labs and review trend with a few clicks click.
Creative **Imaging Review**	Instantly see list of imaging studies marked as "Abnormal" and review them with one click. One-click to go to "Impression." Search ALL imaging studies – like it is one document.	**CPRS** – does not clearly flag abnormal imaging thus easy to miss. **Brillians** -You can't miss abnormal reports.
HEDIS Metrics at a glance	HEDIS/EPRP metrics are a measure of quality of care. In Brillians, user can review all the relevant data in one place which is auto populated.	HEDIS metrics data is scattered on many tabs. Thus**, the data is hard to find and review in CPRS.**
And a few more…		

Brillians: Integrated Clinical Practice Tools

Brillians Tools	Needs and Benefits	Brillians vs CPRS/manual
Batch Print After-Visit Summary (AVS)	Within minutes, user can **batch print AVS** for **all patients** seen in clinic X between Date A and Date B. Automatically saves in VistA/CPRS as a progress note.	Not available in CPRS. Doing so manually may take about 4 hours per week for a busy clinic.
Letter Writer	Frequently needed tool (e.g., work excuse). Nearly 100 letter templates are built in to meet just about any need. Supports personal and shared templates.	Not available in CPRS. Manual: 3-5 minutes/letter. **Brillians**: 30 seconds
Progress Note Writer	High quality progress notes with minimal effort. Improves VERA and 3rd party collections. A large number of templates are built in. Supports personal and shared templates.	CPRS: Templates are inflexible and difficult to use. **Brillians**: highly customizable and easy to use. Visually appealing.
Rx Writer	Many patients request printed Rx to take to the private pharmacies.	Not available in CPRS. Manual: hand-write Rx info. **Brillians**: creates printed Rx within seconds.
View Alert Helper	Facilitates processing of View Alerts	Not available in CPRS. **Brillians** reduces manual work.
Task Manager	*How to remember the imaging study to be ordered 6 months from now?* Brillians maintains the user's personal "To Do" list for the future tasks.	Not available in CPRS.
Medical Calculators	Most of the commonly used medical calculators are included.	Not available in CPRS. **Brillians** automatically calculates and shows high-risk scores to the user.
Medication Reconciliation, Rx History, and more	Easy to use UI for the complex medications/pharmacy related tasks which defy simple solutions.	Not available in CPRS. **Brillians** reduces manual work and ensures accuracy.
Easy access to the hard-to-find clinical data elements	VistA is rich. CPRS is poor. Brillians exposes the hard-to-find data in VistA with 1-2 clicks.	Data may be available in CPRS, but most users do not know where/how to look. **Brillians** provides easy-to-use UI for otherwise complex steps.
And a few more…	JIT health education, data mining, batch processing, Personal "Action Required" list, etc.	