



**VAPALS-ELCAP**

**PARTNERSHIP TO INCREASE ACCESS TO LUNG SCREENING**

**37th Vista Community Meeting  
June 4, 2019**

**Linda M. R. Yaw  
Vista Expertise Network**

# VAPALS-ELCAP Mission

*To increase access to safe and effective lung-screening programs that save lives.*

# VAPALS-ELCAP IT Team



**Paraxial**



**VA** |



U.S. Department  
of Veterans Affairs



**OSEHRA**

*Open Source Electronic Health Record Alliance*

EVERY DAY

**422**

AMERICANS  
DIE OF LUNG  
CANCER.

Lung cancer is the  
leading cancer killer  
of men & women in  
**EVERY ETHNIC  
GROUP.**

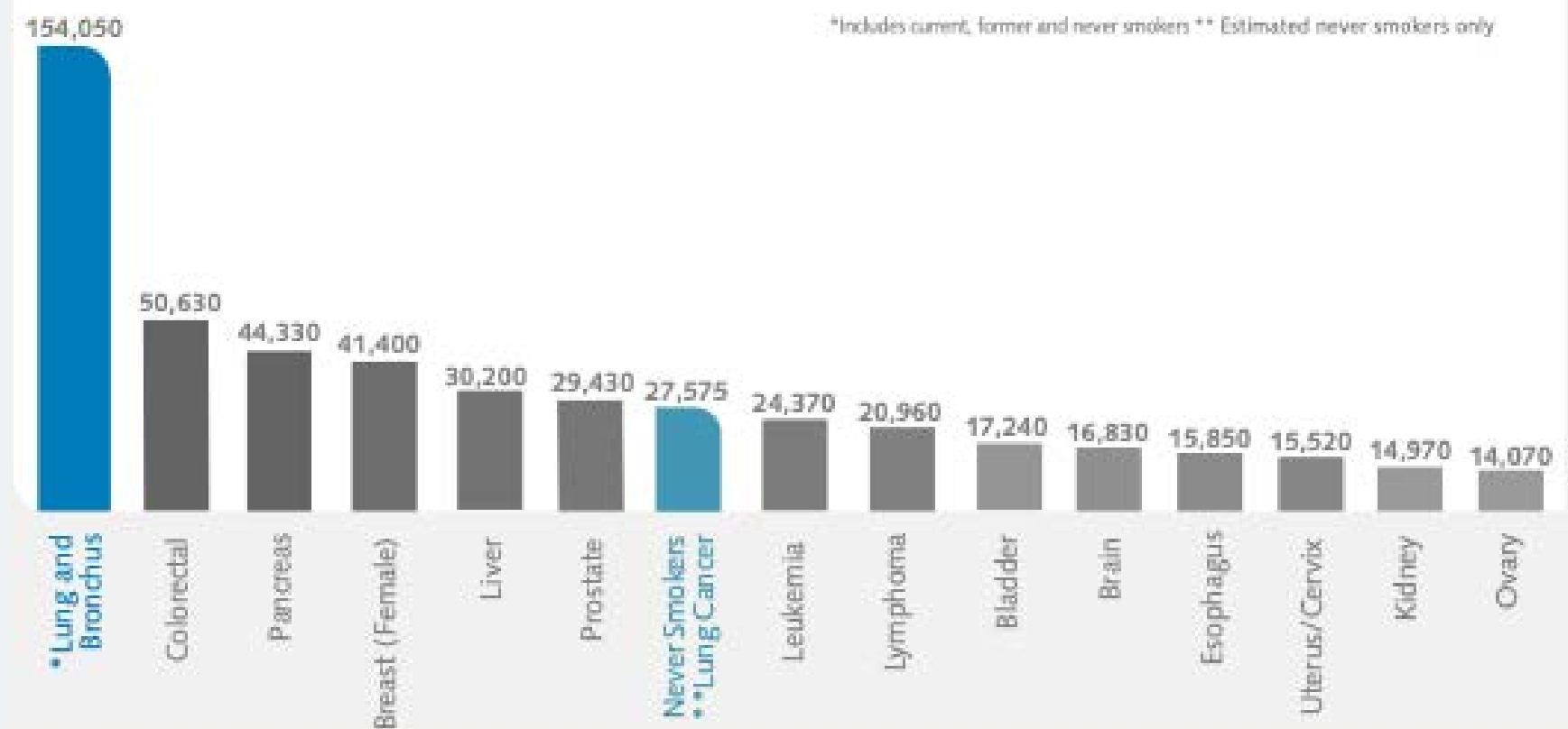
Of the men and women  
with lung cancer,  
17.9% are **NEVER  
SMOKERS.**<sup>2</sup>

Lung cancer makes up  
25% of all **CANCER  
DEATHS.**

# 2018 LUNG CANCER FACTS



## LUNG CANCER IS THE LEADING CAUSE OF CANCER DEATH<sup>1</sup>



### PROFILE OF NEW LUNG CANCER CASES<sup>2</sup>

20.9%  
CURRENT  
SMOKERS

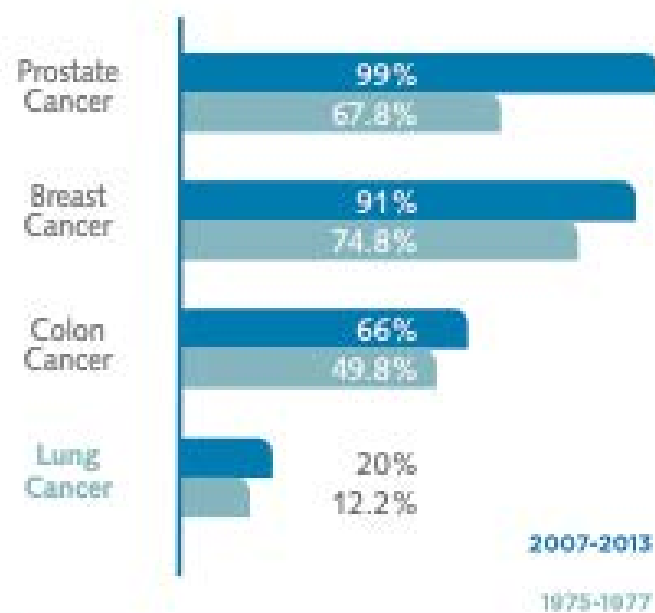
61.2%  
FORMER  
SMOKERS

17.9%  
NEVER  
SMOKED

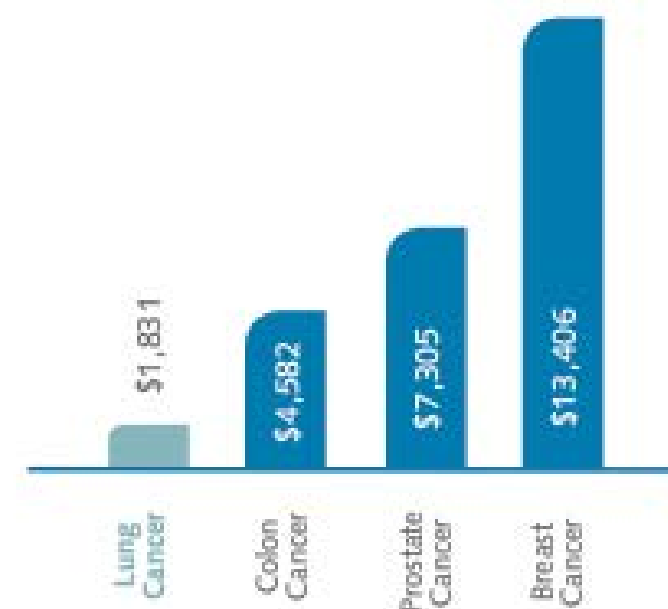
<sup>1</sup> National Cancer Institute, Surveillance, Epidemiology, and End Results (SEER), U.S. Cancer Mortality, 1975-2013, published April 15, 2016

<sup>2</sup> Centers for Disease Control and Prevention, Morbidity and Mortality Weekly Report, "Cigarette Smoking Among Adults -- United States, 2006". November 9, 2007/ 56(44):1157-1161.

# LUNG CANCER IS THE LEADING CAUSE OF CANCER DEATH, BUT RECEIVES THE LEAST AMOUNT OF FEDERAL RESEARCH FUNDING.



**5 YEAR SURVIVAL RATE<sup>4</sup>**  
(CURRENT VS. PAST)



**NIH RESEARCH DOLLARS PER DEATH<sup>5</sup>**  
(ESTIMATED 2016)

<sup>4</sup> Howlader N, Noone AM, Krapcho M, et al. (eds). SEER Cancer Statistics Review, 1975-2014. National Cancer Institute, Bethesda, MD, [http://seer.cancer.gov/csr/1975\\_2014/](http://seer.cancer.gov/csr/1975_2014/), based on November 2016 SEER data submission, posted to the SEER website April 2017.

<sup>5</sup> Funding: National Center for Health Statistics at the Centers for Disease Control and Prevention, "Estimates of Funding for Various Research, Condition, and Disease Categories (RCDC)." [https://report.nih.gov/categorical\\_spending.aspx](https://report.nih.gov/categorical_spending.aspx). Published July 3, 2017.

Deaths: American Cancer Society: Cancer Facts & Figures 2018. Atlanta: American Cancer Society; 2018.

# Low-Dose CT Lung Cancer Screening

Since 2015:

Annual Low-Dose CT Screening is *Reimbursed* For Those at High Risk



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### Proposed Decision Memo for Screening for Lung Cancer with Low Dose Computed Tomography (LDCT) (CAG-00439N)

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#### Decision Summary

The Centers for Medicare & Medicaid Services (CMS) proposes that the evidence is sufficient to add a lung cancer screening counseling and shared decision making visit, and for appropriate beneficiaries, screening for lung cancer with low dose computed tomography (LDCT), once per year, as an additional preventive service benefit under the Medicare program only if all of the following criteria are met:

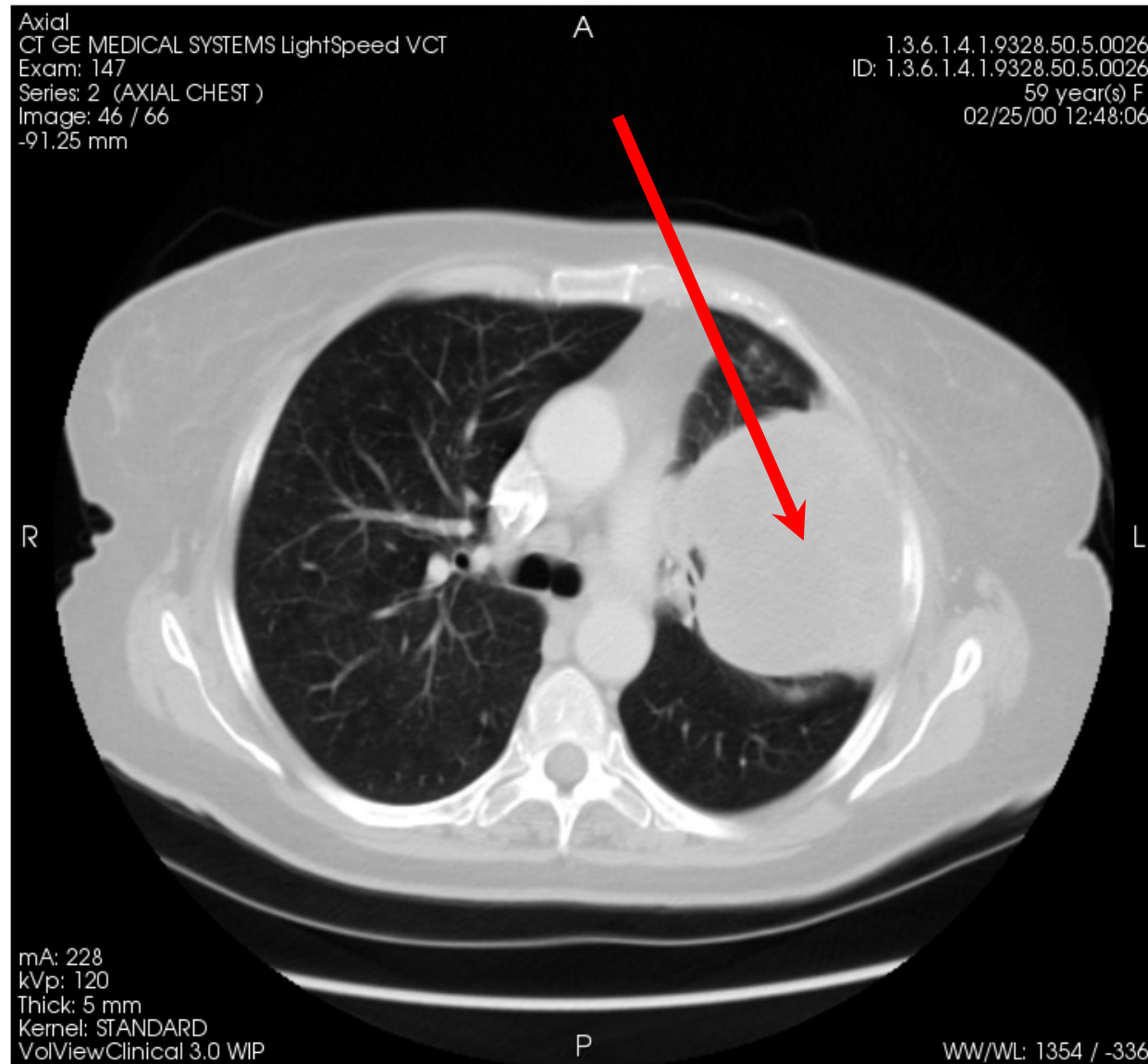
Beneficiary eligibility criteria:

- Age 55-74 years;
- Asymptomatic (no signs or symptoms of lung disease);
- Tobacco smoking history of at least 30 pack-years (one pack-year = smoking one pack per day for one year; 1 pack = 20 cigarettes);
- Current smoker or one who has quit smoking within the last 15 years; and
- A written order for LDCT lung cancer screening that meets the following criteria:
  - For the initial LDCT lung cancer screening service: the beneficiary must receive a written order for LDCT lung cancer screening during a lung cancer screening counseling and shared decision making visit, furnished by a physician [as defined in Section 1861(r)(1) of the Social Security Act (the Act)] or qualified non-physician practitioner (physician assistant, nurse practitioner, or clinical nurse specialist as defined in §1861(aa)(5) of the Act).
  - For subsequent LDCT lung cancer screenings: the beneficiary must receive a written order, which may be furnished during any appropriate visit (for example: during the Medicare annual wellness visit, tobacco cessation counseling services, or evaluation and management visit) with a physician (as defined in Section 1861(r)(1) of the Act) or qualified non-physician practitioner (physician assistant, nurse practitioner, or clinical nurse specialist as defined in Section 1861(aa)(5) of the Act).
- A lung cancer screening counseling and shared decision making visit includes the following elements (and is appropriately documented in the beneficiary's medical records):
  - Determination of beneficiary eligibility including age, absence of signs or symptoms of lung disease, a specific calculation of cigarette smoking pack-years; and if a former smoker, the number of years since quitting;
  - Shared decision making, including the use of one or more decision aids, to include benefits, harms, follow-up diagnostic testing, over-diagnosis, false positive rate, and total radiation exposure;
  - Counseling on the importance of adherence to annual LDCT lung cancer screening, impact of comorbidities and ability or willingness to undergo diagnosis and treatment;
  - Counseling on the importance of maintaining cigarette smoking abstinence if former smoker, or smoking cessation if current smoker and, if appropriate, offering additional Medicare-covered tobacco cessation counseling services; and
  - If appropriate, the furnishing of a written order for lung cancer screening with LDCT. Written orders for both initial and subsequent LDCT lung cancer screenings must contain the following information, which must also be documented in the beneficiaries' medical records:
    - Beneficiary date of birth;
    - Actual pack-year smoking history (number);
    - Current smoking status, and for former smokers, the number of years since quitting smoking;
    - Statement that the beneficiary is asymptomatic; and
    - NPI of the ordering practitioner.



# Lung Cancer Screening Benefit

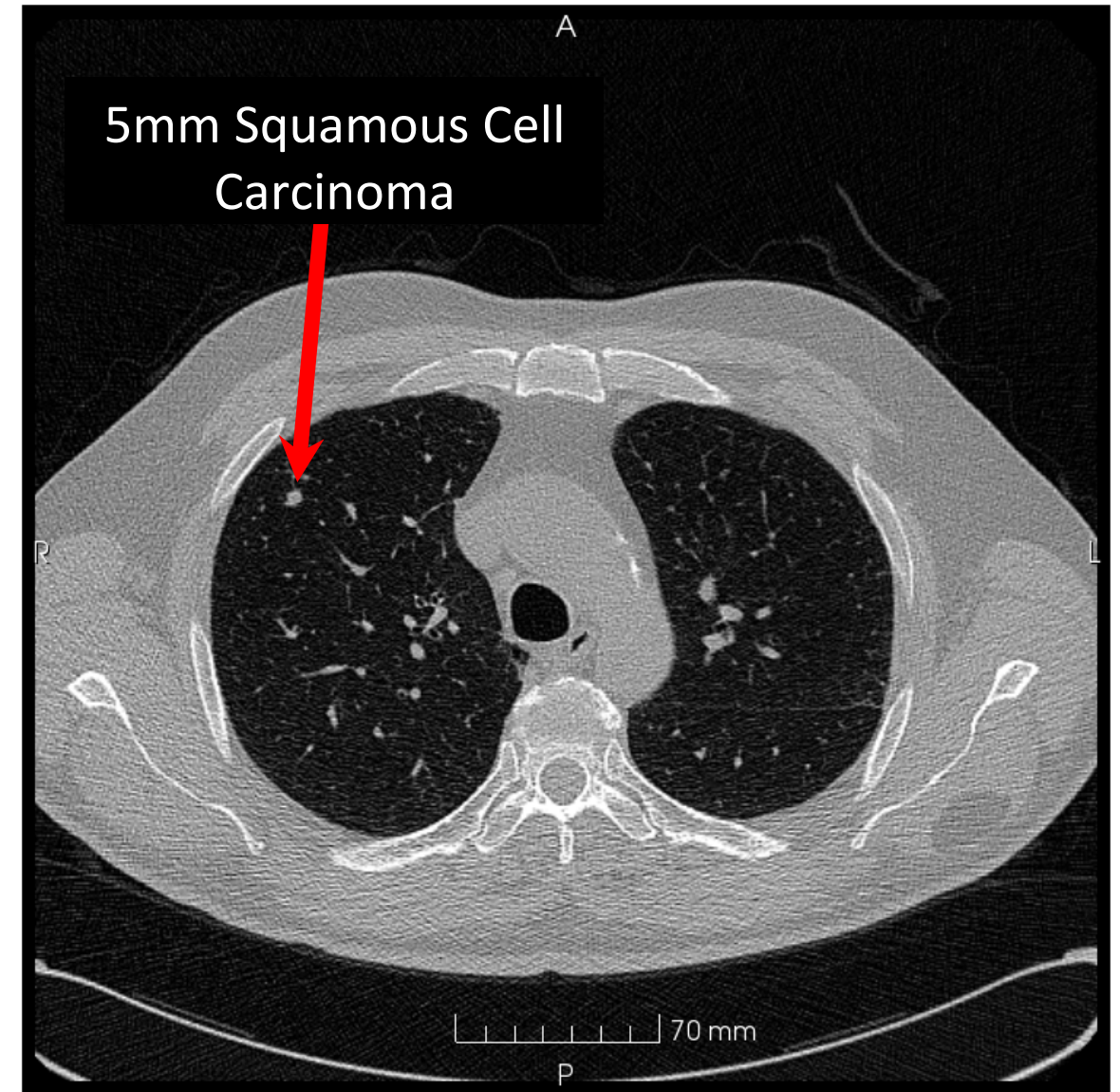
## Late-Stage Lung Cancer



[R. Gottlieb, Roswell Park Cancer Institute]

**~5% five year survival**

## Early Lung Cancer



[Dr. Javier Zulueta, University of Navarra]

**~85% five year survival**

# Main Objectives

## **Implementation**

Introduce the I-ELCAP management system at 10 VA medical centers (supported by VA Office of Rural Health and VA Quality Enhancement Research Initiative)

## **Quality Assurance**

Establish a centralized QA program for LDCT interpretations (supported by VA National Radiology Program)

## **Research Evaluation**

Does the I-ELCAP system cause a stage shift within VA?  
(Institutional Review Board approved at Richmond VAMC)



# VAPALS-ELCAP Software Package

The screenshot displays the VAPALS-ELCAP software interface within a web browser. The browser's address bar shows the URL `avicenna.vistaexpertise.net:9080/vapals`. The page header includes the VAPALS-ELCAP logo with the tagline "PARTNERSHIP TO INCREASE ACCESS TO LUNG SCREENING" and navigation links for "Home" and "Reports".

The main content area features a "Patient Lookup" form. It includes a text input field labeled "Patient" with the placeholder text "Name or LAST5" and a "Submit" button.

Below the form is a section titled "Rural engagement in VA-PALS Test" which contains a 3D pie chart. The chart is divided into three segments: Rural (43.8%, blue), Urban (51.6%, red), and Unknown (4.6%, yellow). A legend to the right of the chart identifies the colors: Rural (blue), Urban (red), and Unknown (yellow).

Category	Percentage
Rural	43.8%
Urban	51.6%
Unknown	4.6%

# VAPALS-ELCAP by the numbers

(as of now)

## Vista Resources:

- 7 Clinical forms
- 3 TIU Notes
- 1 Radiology Report
- 6 User Reports

## Mumps Resources:

- 78 Mumps routines:
  - ★ 33 Unit-test routines
  - ★ 4 “Non-routine” routines
  - ★ 41 Active package routines

## External Resources:

- 3 shell scripts
- 16 HTML templates
- 20 Jinja2 templates (Python)
- 1 Python script
- 1 CSS file
- 6 JavaScript files

# M-Form

*A Mumps Web Templating Interface*

## **Plugin Architecture**

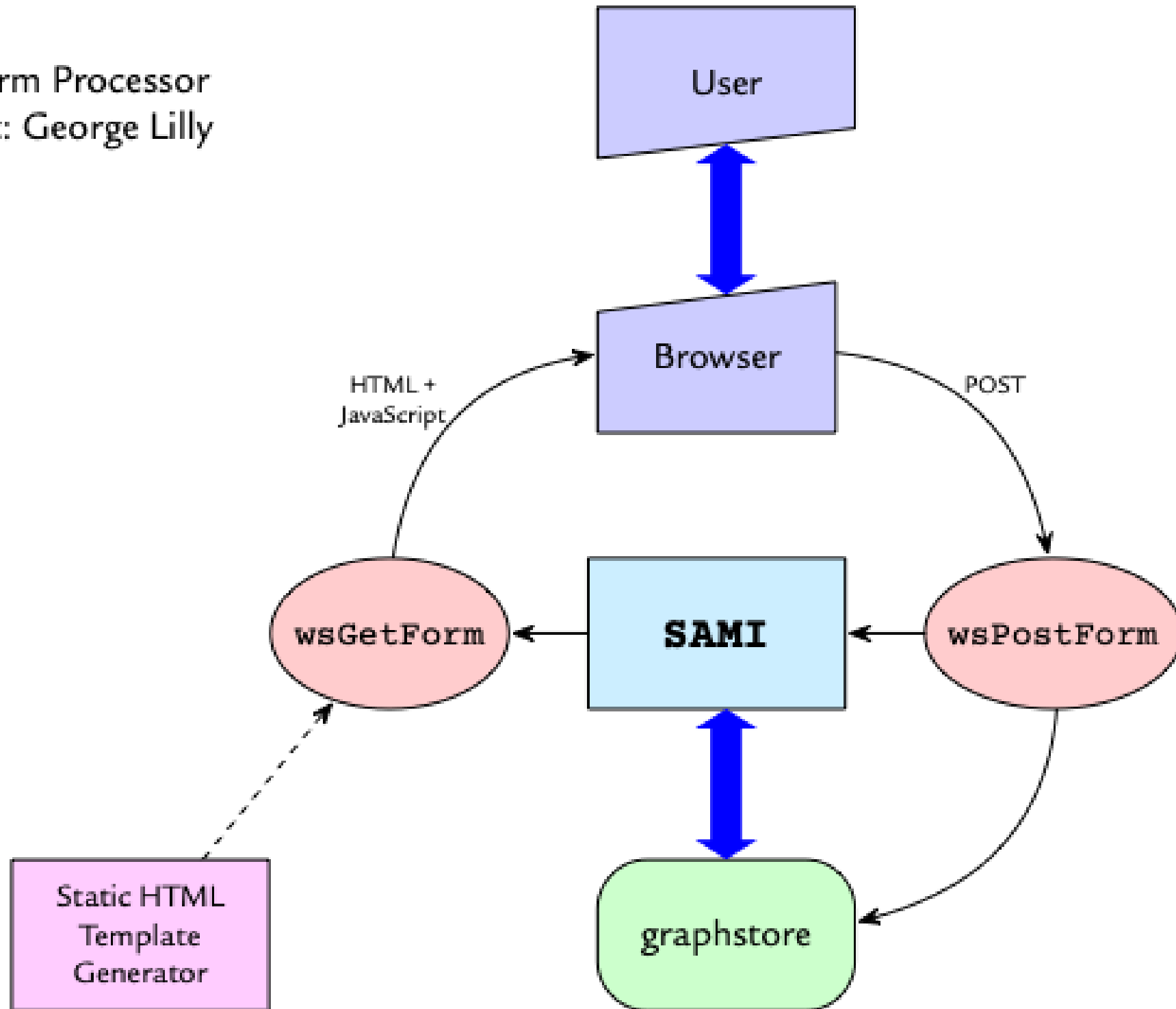
- No top down control
- Easily add:
  - ✦ New applications
  - ✦ New forms

## **Stateless**

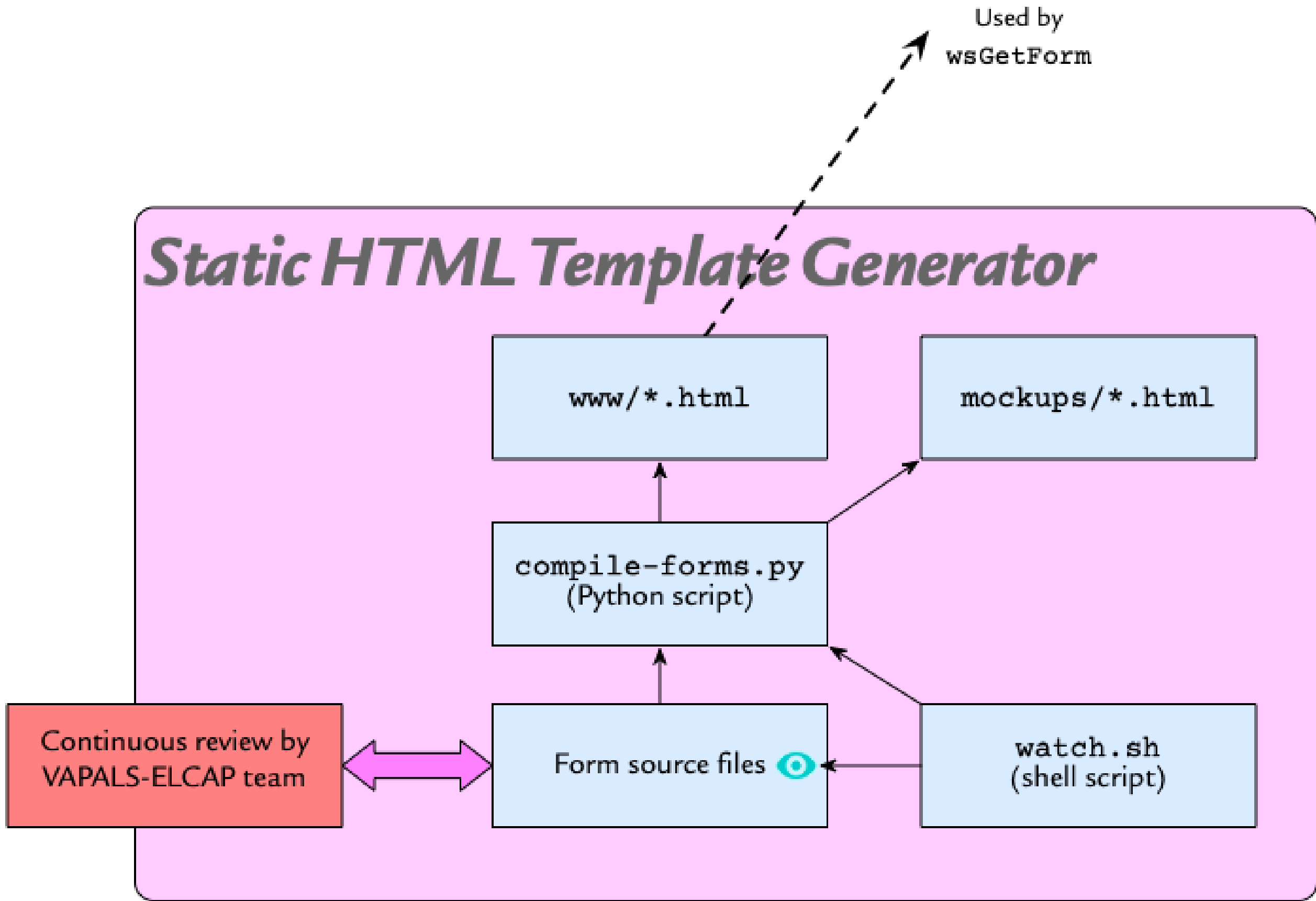
- No user sessions
- No complex control flow
- No worries about past interactions

# M-Form

Mash Form Processor  
Architect: George Lilly

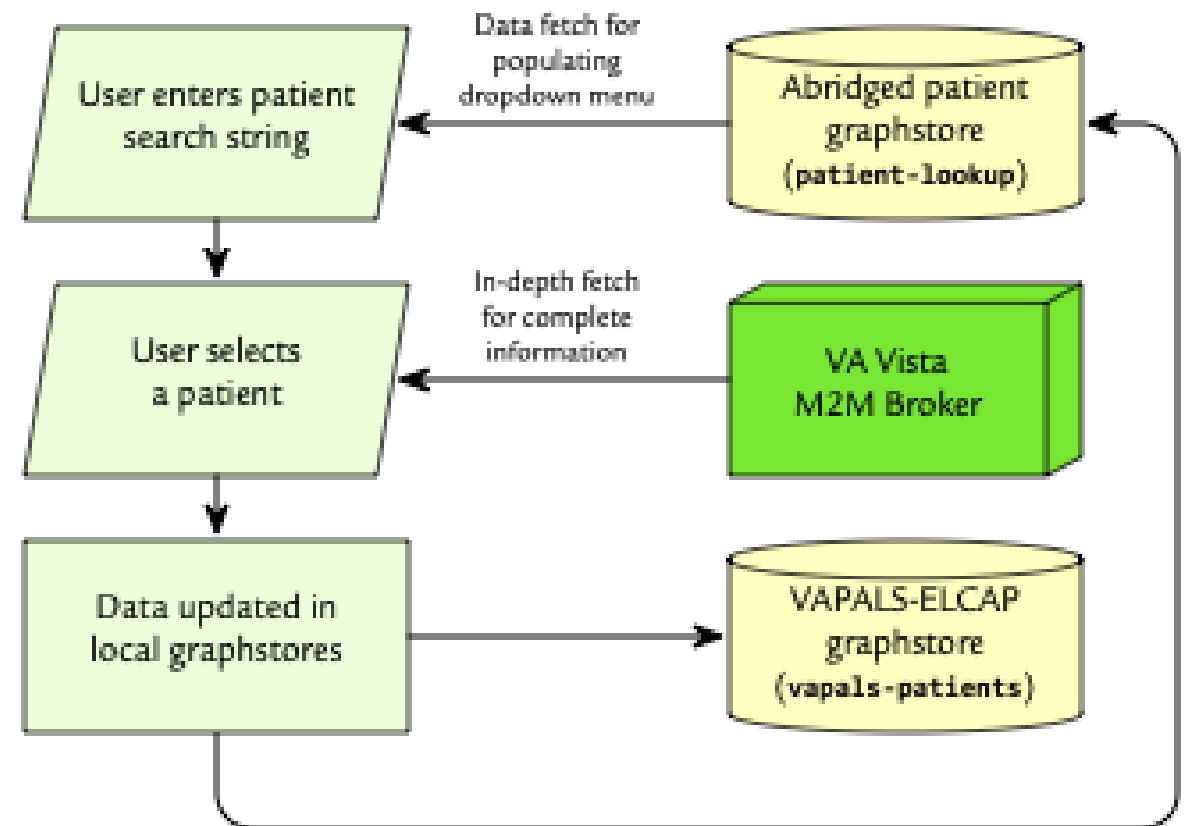
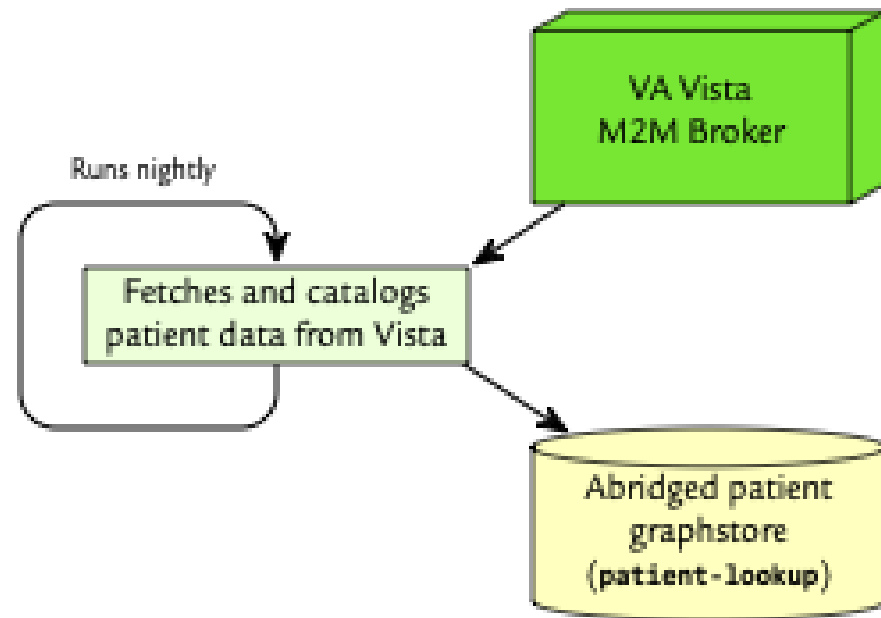


# Static HTML Template Generator



# Mumps Process Flow

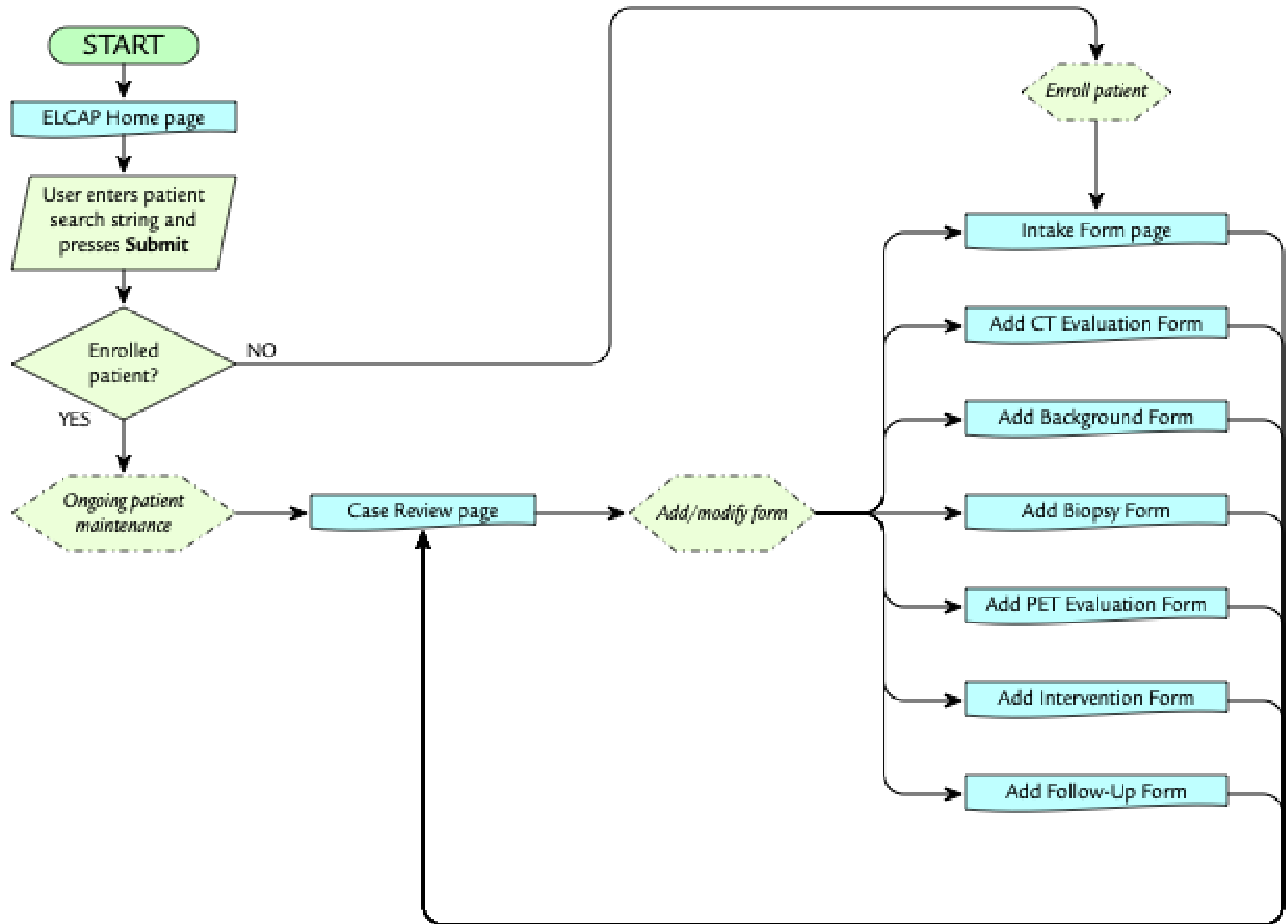
2019-05-31





# Mumps Process Flow

2019-05-31



# Documentation

## Manuals:

- User Manual
- Technical Manual
- Install Guide and Release Notes

## In code:

- Historical information
- Module logs
- Inline documentation

# What's Next?

- OSEHRA Certification
- Patch 1
- Installation in Phoenix Test
- Beta testing
- Installation in Phoenix Production
- Roll out to up to nine more sites

# Access

- Demo site:  
<http://demo.va-pals.org/vapals>
- Manuals (and Docker install guide):  
<http://vistaexpertise.net/vapals-elcap/>
- Github:  
<https://github.com/OSEHRA/SAMI-VAPALS-ELCAP/>
- My email: [linda.yaw@vistaexpertise.net](mailto:linda.yaw@vistaexpertise.net)