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Reducing Warfarin ADR's with a Nurse Led Anticoagulation Clinic: A New Model of Patient Care

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BACKGROUND

Warfarin

- Prescribed since the 1950's for patients with atrial fibrillation, deep vein thrombosis, pulmonary emboli and prosthetic heart valves.
- Adverse effects can be life threatening and costly.
- Many emergency department hospitalizations are due to unintentional overdoses.
- Literature review showed a nationwide problem in the management of patients on this therapy.
- Due to its extensive drug interaction profile, it requires frequent monitoring and dose adjustments.
- In order for the medication to work appropriately, patients must have INR testing to determine whether they are in therapeutic range.
- Management is complex because of its intricate pharmacokinetic, pharmacodynamic properties, and narrow therapeutic ranges.



SOUTH MIAMI HOSPITAL

Warfarin

- Leading cause of drug related adverse events at South Miami Hospital prior to the clinic opening.
- Resulting in 27 hospital admissions a year.
- Patients had prolonged hospital stays due to sub therapeutic INRs and frequent ED visits due to warfarin toxicity.
- A retrospective chart review revealed that patients were being discharged without a clear plan for follow up and management.
- General lack of knowledge among patients taking Warfarin in regards to strength, use and effect.
- Serious and sometimes fatal warfarin and heparin toxicity issues were being experienced throughout our own community as evidenced by our Emergency Department reports of frequent readmissions.


BRANDS AND STRENGTHS

| Coumadin | Warfarin | Jantoven |
|---|--|---|
|  |  |  |
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ENGAGING IN A QUALITY IMPROVEMENT PROJECT

- An interdisciplinary team was formed to address this problem.
 - Nurses, doctors, and nurse practitioners.
 - Decision was made to create an anticoagulation clinic to address the number of patients going to the emergency room due to warfarin toxicity.
 - In 2007 South Miami Hospital Anticoagulation Clinic opened its door.
- 

PROJECT GOAL

- The foundation of our efforts in the development of an Anticoagulation Clinic was to:
 - Improve the quality of life
 - Educate the community
 - Decrease time in the hospital
 - Enhance the effectiveness and compliance of treatment plans
 - Mitigate the risks associated with the use of anticoagulants
- The primary goal of service was to act as a bridge in the transition from hospital to home.



IDENTIFYING CHALLENGES

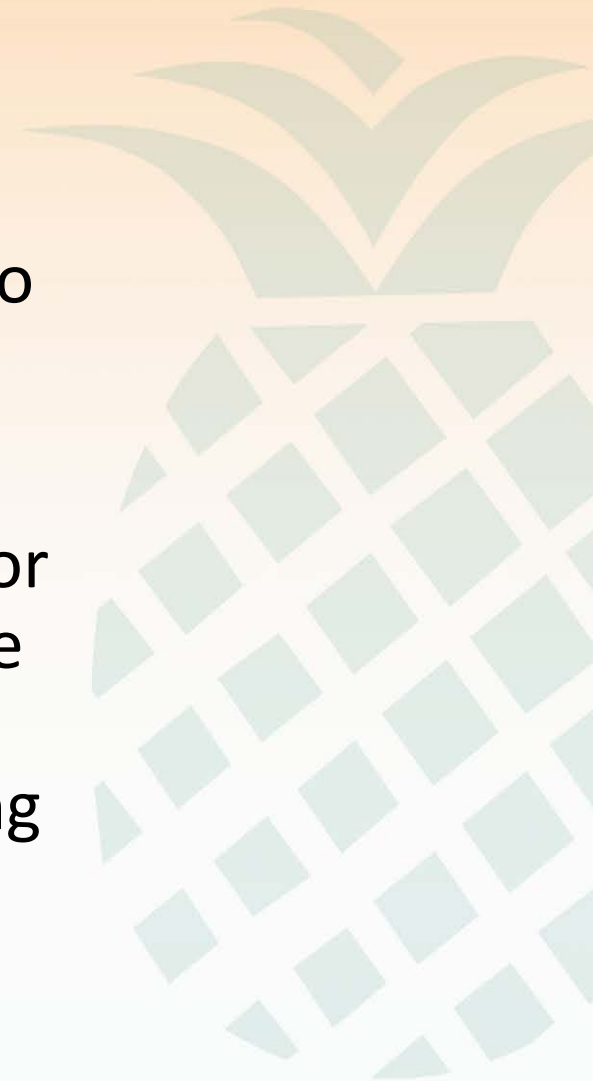
Our community patients were uninsured, impoverished, and dependent on nurses' care.





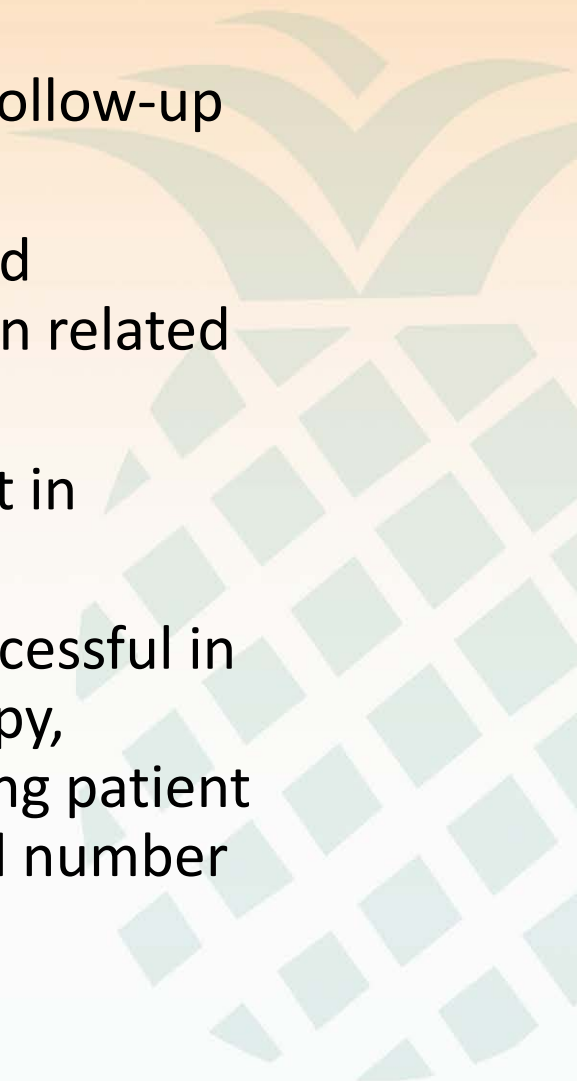
OUTREACH PROGRAM

- Charity care program which provides office visits and point of care testing to those that meet the criteria.
- This program has allowed us to care for the patients who would normally have limited resources, and in turn provide education and assist them in becoming proactive in their own health care.

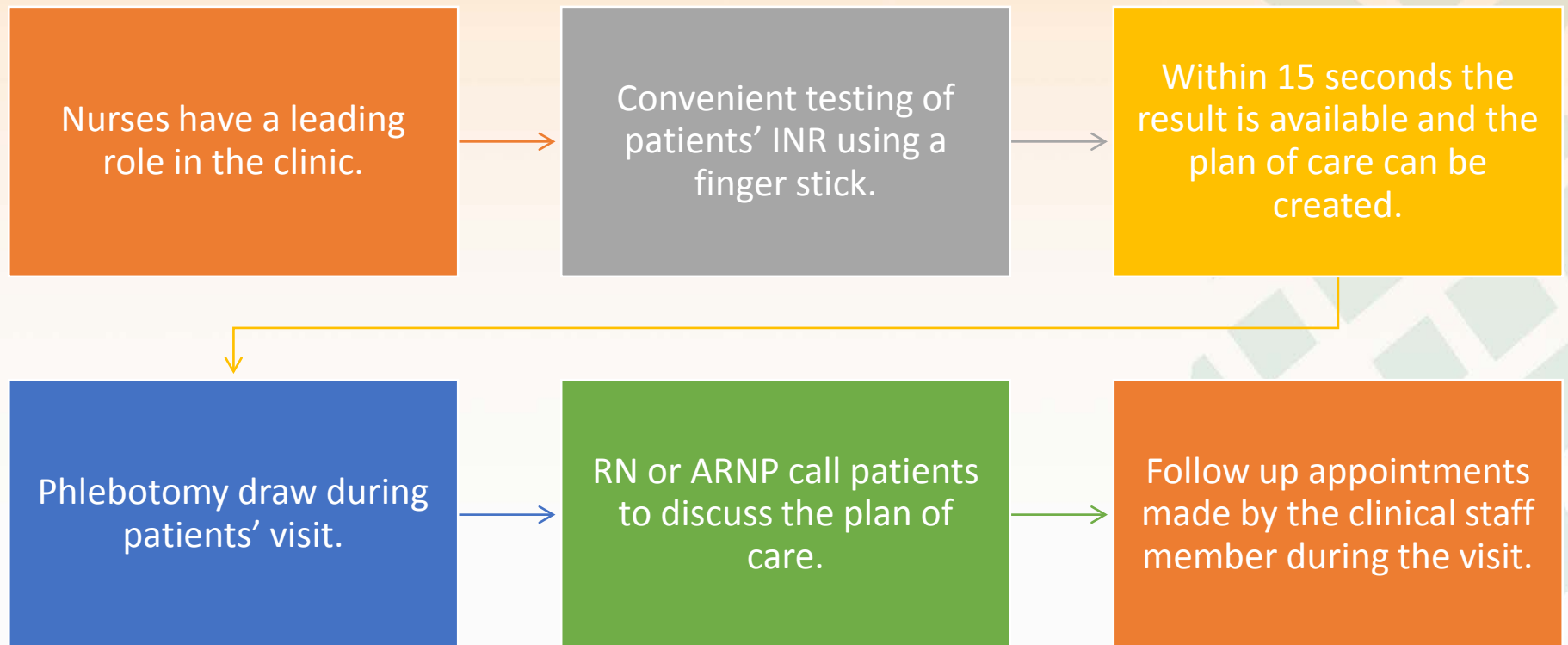




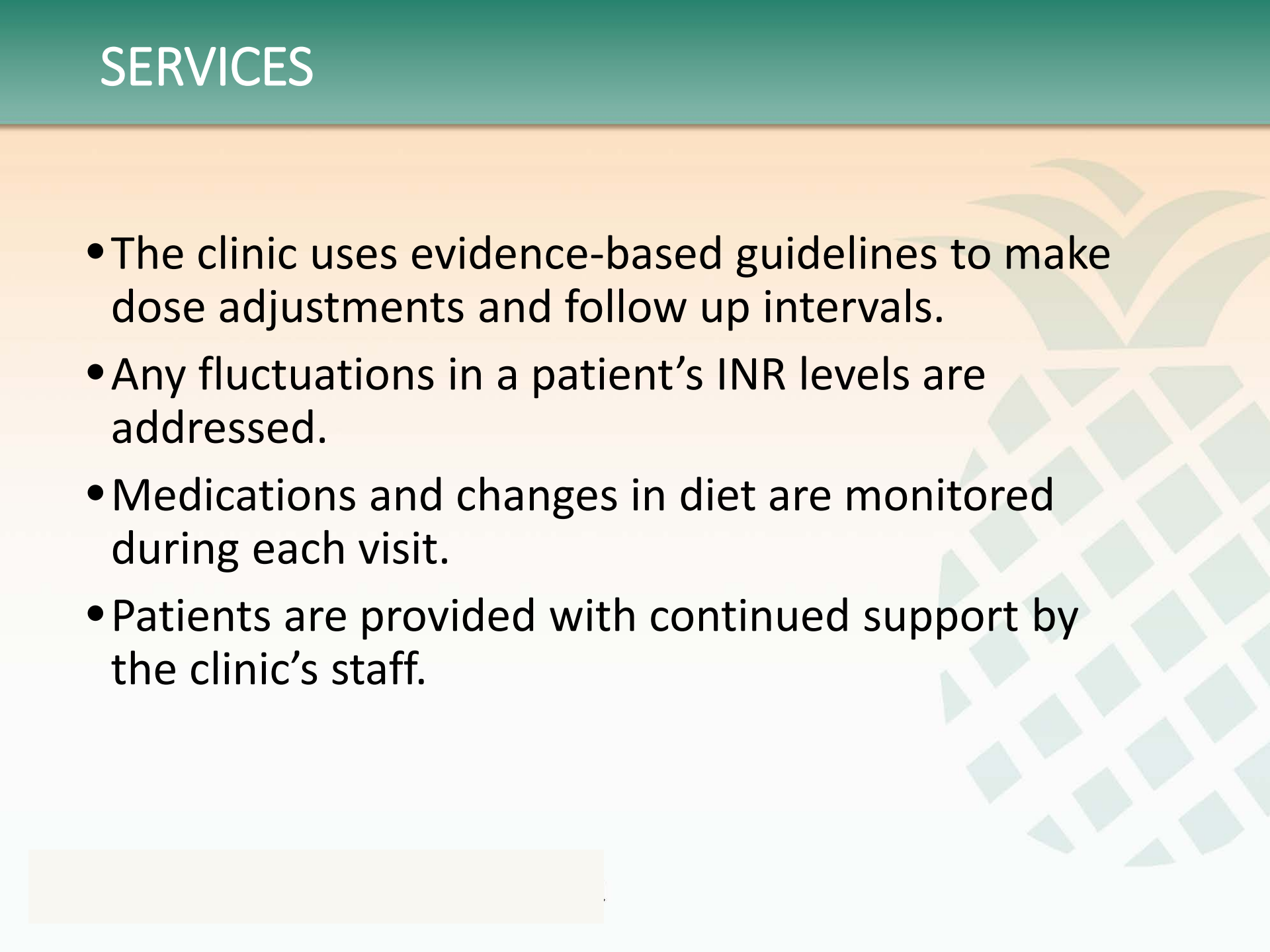
PATIENT SAFETY ACCOMPLISHMENTS

- Safely patient discharge with an immediate follow-up visit by the clinic staff for INR adjustments.
 - Patients are discharged earlier and monitored frequently which has reduced anticoagulation related readmissions.
 - Reduction in hospital costs and improvement in patient outcomes.
 - Clinic has grown in volume and has been successful in monitoring outpatient anticoagulation therapy, providing patient continuity of care, increasing patient safety, decreasing patient complications, and number of adverse drug reactions.
- 

ANTICOAGULATION CLINIC



SERVICES

- The clinic uses evidence-based guidelines to make dose adjustments and follow up intervals.
 - Any fluctuations in a patient's INR levels are addressed.
 - Medications and changes in diet are monitored during each visit.
 - Patients are provided with continued support by the clinic's staff.
- 

EDUCATION AND COMMUNICATION

- Diet
- Medication interaction
- Safety
- Common reactions
- Emergency management
- Bridging
- Referring physician
 - Results
 - Dosing instructions
 - Notice of non-compliance
 - Yearly prescription renewal
- Consulting physician
 - Bridging plan of care
 - Anti-coagulant transition

Alere CoagClinic

Patient Visit Summary - South Miami Heart Center Outpatient Services








| Patient Name | Date of Birth / Age | Visit Date | Location | Phone Number |
|----------------|---------------------|------------|----------|----------------|
| DUCK, DONALD D | 1/1/2001 / 16 | 6/7/2017 | Meetings | (786) 662-4380 |

Visit Results

| CrCl | INR | In Range | Dose Size(mg) | Anticoagulant Type |
|------|-----|----------|---------------|--------------------|
| | 2.5 | 2 - 3 | 5 | COUMADIN |

| Sys/Dia (mmHg) | BP Location | Pulse (bpm) | Pulse Quality | Pulse Location | Patient Position |
|----------------|-------------|-------------|---------------|----------------|------------------|
| 115/65 | | 81 | | | |

Please take your Anticoagulation Medication according to the following dosing schedule:

| | Sun | Mon | Tue | Wed | Thu | Fri | Sat | Total Weekly Amount |
|--------------|--|---|---|---|---|---|---|---------------------|
| Week 1 | 5 mg | 5 mg | 5 mg | 2.5 mg | 5 mg | 5 mg | 5 mg | 32.5 mg |
| # of Tablets | 1 Tablets | 1 Tablets | 1 Tablets | 0.5 Tablets | 1 Tablets | 1 Tablets | 1 Tablets | |
| |  |  |  |  |  |  |  | |


Please return for follow up on: Fri, 6/16/2017 at 10:30 AM at Anticoagulation Clinic

Our records indicate that you have the following allergies to medicines and are on the following medications. Please take a moment to verify this information and notify us of any changes.

Medication Allergies

| Medication | Reaction Type | Severity | Classification | Start Date | Stop Date |
|-------------------------------|---------------|----------|--------------------------|------------|-----------|
| PEDIACARE MULTI-SYMP TOM COLD | Nausea | Moderate | Unspecified (0401010000) | 5/23/2012 | |

Current Anticoagulant Medications

| Medication | Dose | Units # | Freq | Route | Classification | Start Date | Stop Date |
|------------|---|---------|------|-------|----------------|------------|-----------|
| COUMADIN |  | 5 mg | | | Anticoagulants | 3/10/2010 | |

ACHIEVING THE GOAL

- Since the clinic has opened, there has been a steady decrease in Coumadin related adverse events.
- Prior to the anticoagulation clinic, there were between 22 – 27 hospital admissions related to Warfarin toxicity or complications.
- Today the number has decreased significantly to less than 10 admissions per year and this number has been sustained.



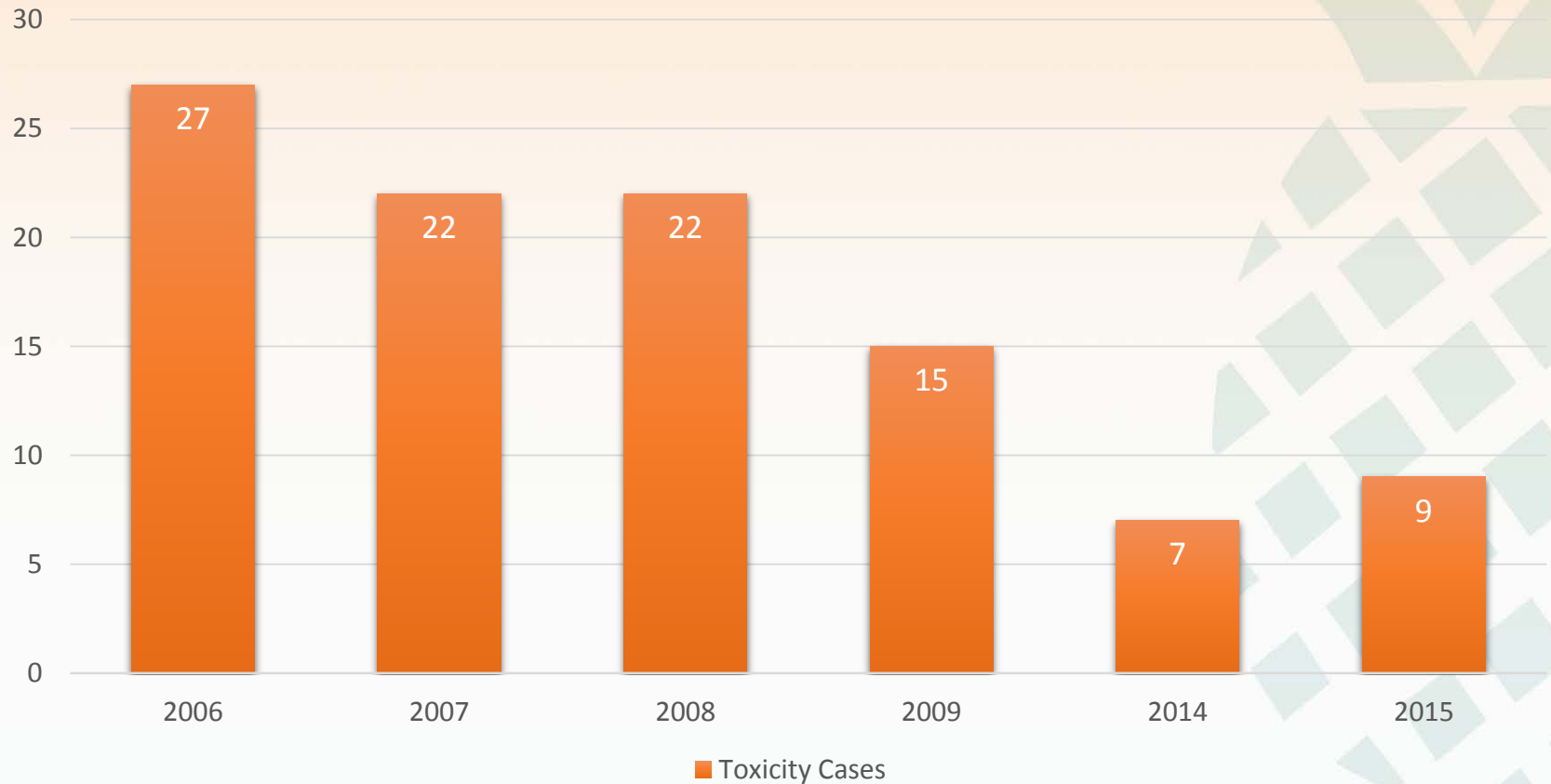
MONITORING INRS & ADR

- Patients are carefully monitored and data regarding adverse drug related (ADR) admissions are analyzed and reported to the SMH Pharmacy and Therapeutics committee.
- The Pharmacy department monitors and reports ADR data.



MAKING PROGRESS

Toxicity Cases on Admission



LESSONS LEARNED

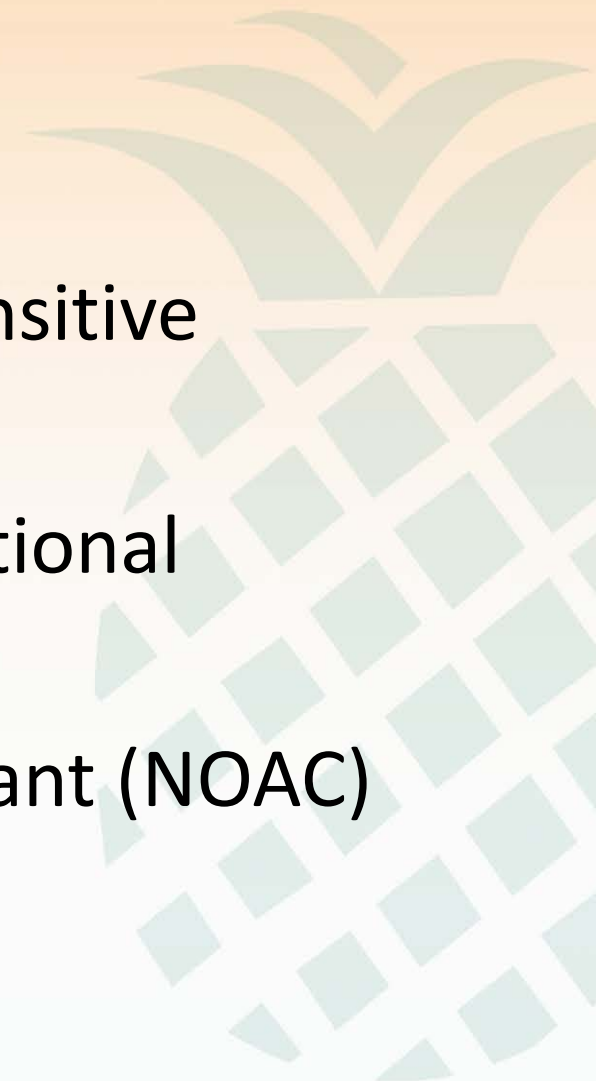
It is evident that the anticoagulation clinic is a remarkable resource for education, monitoring, and Warfarin management.

This model has been effective of reducing Warfarin toxicity admissions by 74% since its opening.

Patients continue to appreciate the timeliness and convenience of their Warfarin management.

FUTURE GOALS

- Development of a culturally sensitive teaching tool
- Improvement of current educational materials
- Enhance novel oral anti-coagulant (NOAC) safety and monitoring



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QUESTIONS

