

**DIAGNOSTIC ERROR IN MEDICINE  
- BACK TO THE FUTURE**

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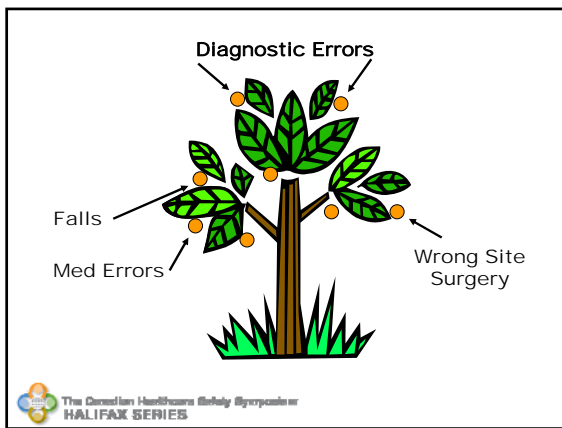
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**How far have we come ?**

**What have we learned ?**

**Where are we now ?**

**Where should we go ?**



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## Progress - Dialogue

3 <sup>rd</sup> Halifax Symp on Pt Safety	2003
Naples FL meeting on Dx Error	2007
1 <sup>st</sup> Intl Conference on Dx Error	2008 Phoenix
2 <sup>nd</sup> Intl Conference on Dx Error	2009 LA
3 <sup>rd</sup> Intl Conference on Dx Error	2010 Toronto

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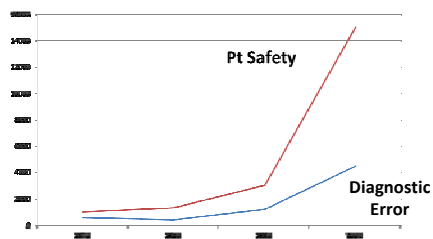
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## Progress - Publications



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## Progress - Understanding clinical reasoning

How Do Doctors Think ?

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## Progress - Understanding clinical reasoning

~~How Do Doctors Think ?~~

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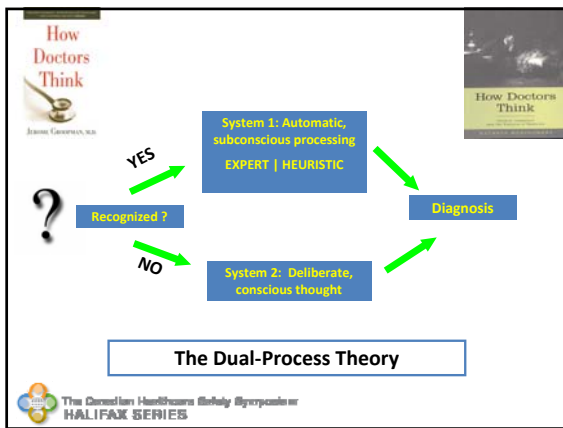
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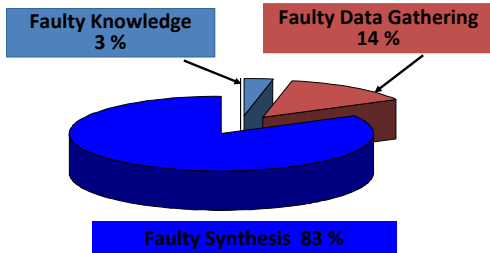
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## Progress - Understanding cognitive error



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## Premature closure = Satisficing

= Falling in love with the first puppy ...

(Herbert Simon)



 The Canadian Healthcare Safety Symposium  
HALIFAX SERIES

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## Context errors



“Say ... what’s a mountain goat doing way up here in a cloud bank?”

 The Canadian Healthcare Safety Symposium  
HALIFAX SERIES

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## Progress - Understanding systems

- Ensuring screening tests are done
- Communicating critical test results
- Making sure expertise is available when needed
- Coordinating care across different providers, sites, systems
- Making sure prior medical data is available for review
- Empowering patients to be part of the diagnostic team

 The Canadian Healthcare Safety Symposium  
HALIFAX SERIES

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## Progress - Early solutions

### Cognition

Reflection    Debiasing    Second opinions    Checklists  
Debiasing    Simulation    Human factors – data presentation

### Systems

Electronic records    Better alerts    Direct communication  
Patient feedback loop    Error detection algorithms



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## Summary -- Progress

**Dx error is ON the radar screen (barely !)**

**Dx error 'champions' exist & collaborate**

**The root causes of Dx error can be identified**  
**Improvements are being conceptualized and**  
**tried**



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## Problems ...

**The risk of diagnostic error is LARGE and**  
**has probably NOT declined**



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### Estimates of the Diagnostic Error Rate

<b>Malpractice</b>	Dx error is the leading cause in every HCO
<b>Patient Surveys</b>	One third of patients relate a Dx error that affected themselves, a family member, or close friend
<b>Second reviews</b>	10-30% of breast cancers are missed on mammography; 1-2% of cancers misread on biopsy samples
<b>Standard pts</b>	Internists misdiagnosed 13% of patients presenting with common conditions to clinic (COPD, RA, others)
<b>Look backs</b>	30% of subarachnoid hemorrhage misdiagnosed; 39% of dissecting AAA delayed diagnosis; 25-50% of women with cervical cancer – last PAP abnl on re-read
<b>Autopsies</b>	Major unexpected discrepancies that would have changed the management are found in 10-20%
<b>Expert guess</b>	Arthur Elstein: 10%

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**John Ritter**  
1948 – 2003  
Delayed diagnosis  
of aortic dissection



**Maurice Gibb**  
1949 – 2003  
Delayed diagnosis  
of intestinal volvulus

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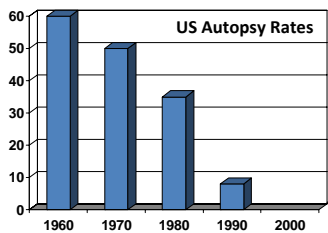
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### Problems - Lack of feedback



The result ....  
**OVERCONFIDENCE**

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## Problems ... Lack of attention

- NPSF & IHI 2010 Annual Meetings
  - 0 sessions
- NQF & AHRQ
  - 0/50 adverse event indicators
- JCAH
  - 1/30 accountability measures
  - 2/28 patient safety goals

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## Summary -- Problems

No one is finding or counting errors

There is not enough feedback

→ overconfidence

Little or no interest ....

- Clinicians
- Healthcare organizations
- Oversight & funding agencies

The likelihood of diagnostic error  
remains HIGH

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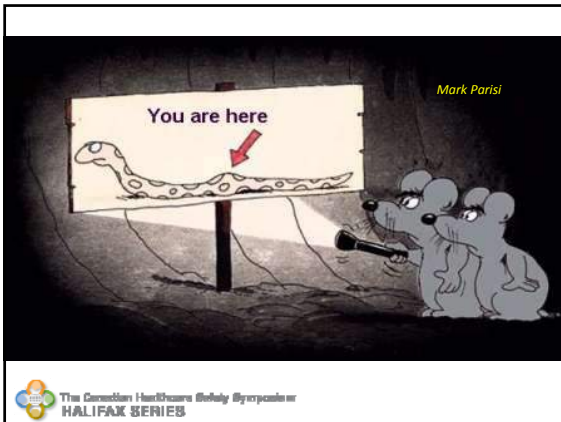
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**ARMANDO GALARRAGA**

Detroit Tigers, RHP

June 2, 2010:  
Tigers vs Cleveland Indians

First 26 batters retired  
27<sup>th</sup> = Jason Donald:  
Hit a grounder to first baseman, threw to Galarraga, covering first base

1<sup>st</sup> Base Umpire:  
Jim Joyce - SAFE

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**Significance of a perfect game**

# of perfect games since 1900 (110 years): 18  
# of perfect games for Detroit Tigers (100+ years): 0  
Odds any one pitcher will have a perfect game  
in his entire career < 1/1000

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**The good .....  
Disclosure, apology**

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**The BAD ...**

The Commissioner, the owners and the players  
unanimously agree:

**NO instant replay (77%)**

Errors are **ACCEPTABLE**

**They are just part of the game**



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**What ONE thing can YOU do**

**to reduce harm**

**from Diagnostic Error?**



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