



# Automated or Semi-Automated problem list placement

**AMDIS PCC**

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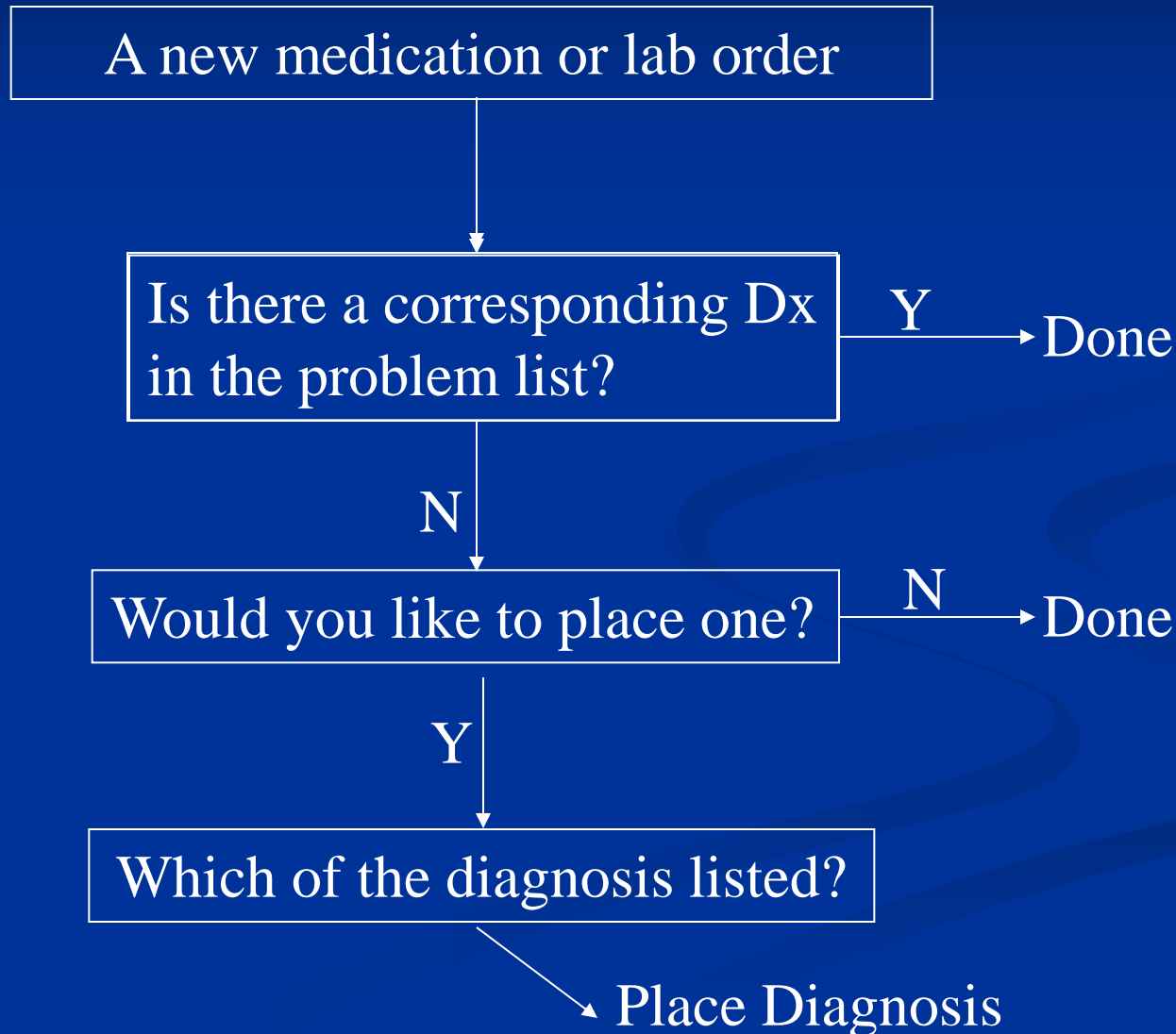
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# Synchronous Problem List Placement Alerts



# Asynch Problem List Placement

MA documents Smoking

→ Place Diagnosis & Problem

Nurse Assesses Fall Risk

→ Place Problem

Nurse chart prior Hx of  
MRSA

→ Place Problem

Lab reports a  $\downarrow K^+$

→ Place Problem

Lab reports a normal  $K^+$

→ Remove Problem

# Why place a problem from an already documented piece of data?

Lab reports a  $\downarrow K^+$

→ Place Problem


Lab reports a normal  $K^+$

→ Remove Problem

- The Joint Commission likes problems
- A problem might get more attention than a lab?
- If you automatically leverage your problem list, the lab result will be disseminated;
  - Rounds Reports
  - Hand Off Reports
  - Discrete Documentation: Problem list
  - At the time of Billing

# Problem List Placement & Med Order “time-out”

Discern:

 **Add Diagnosis**

The medication you are ordering is usually used for the treatment of hypertension (HTN) and/or nephropathy and/or systolic heart failure. No diagnosis appears on the patient's problem list as an ICD-9 code for any of these diseases.

If **TENTHFLOOR, DELTA** has HTN, or systolic heart failure or nephropathy, please consider adding the diagnosis by clicking 'Add Diagnosis' and then checking the diagnosis. More than one diagnosis may be added.

To cancel this order, click 'Cancel Order.'

To ignore this alert and place the order without entering a diagnosis, click 'Ignore Alert.'

Alert Action

Cancel Order

Ignore Alert

Add Diagnosis

Diabetes mellitus with renal manifestations, type II or unspecified type, not stated as uncontrolled

NEPHRITIS AND NEPHROPATHY, NOT SPECIFIED AS ACUTE OR CHRONIC, WITH UNSPECIFIED PATHOLOGICAL LESION IN KIDNEY

UNSPECIFIED ESSENTIAL HYPERTENSION

UNSPECIFIED SECONDARY HYPERTENSION

UNSPECIFIED SYSTOLIC HEART FAILURE

OK

# # of Medications

**Table 1** Alert groups with corresponding medications

Alert group name	Medications
S/P CVA	Aspirin-dipyridamole
COPD/asthma	Fluticasone, fluticasone/salmeterol, tiotropium
Diabetes mellitus oral	Rosiglitazone, repaglinide, pioglitazone, nateglinide, metformin, glimepiride, sulfonylureas, and combinations of these medications
Factor VIIa	Coagulation factor VIIa
HTN	Aliskiren, amiloride, $\beta$ blockers except metoprolol-succinate and carvedilol, calcium channel blockers, clonidine, furosemide, guanfacine, methyldopa, metolazone, minoxidil, nitroprusside, thiazides, triamterene, and combinations of these medications
HTN/CHF	Carvedilol, hydralazine, isosorbide dinitrate, metoprolol succinate, spironolactone
HTN/BPH	$\alpha$ Blockers
HTN/CHF/nephropathy	ACE, ARB
HIV	NRTIs, NtARTIs or NtRTIs, NNRTIs, protease inhibitors
Hyperlipidemia	HMG-CoA reductase inhibitors, red yeast rice, niacin, fibric acids, ezetimibe, cholestyramine
Intravenous immune globulin	Intravenous immune globulin (IVIG)
Osteoporosis	Bisphosphonates
Ambulatory insulin	Insulins
Pediatric asthma	Albuterol
Proton pump inhibitors (PPI)	PPI
Selective serotonin reuptake inhibitors	Selective serotonin reuptake inhibitors (SSRI)
Hypothyroidism	Levothyroxine; liotrix, thyroid desiccated

\*Promote Problem List Placement

\*Make the prescriber think twice about med orders when there is no diagnosis to match the med.

- Reduce Wrong Med Orders

  - Drug Name Confusion

- Reduce Wrong Patient Orders

<http://www.uic.edu/com/dom/gim/TOPMEDS/>

Galanter W, Falck S, Burns M, Laragh M, Lambert BL. Indication-based prescribing prevents wrong-patient medication errors in computerized provider order entry (CPOE). *J Am Med Inform Assoc.* 2013 May 1;20(3):477-81.

Galanter WL, Bryson ML, Falck S, Rosenfield R, Laragh M, Shrestha N, Schiff GD, Lambert BL. Indication Alerts Intercept Drug Name Confusion Errors During Computerized Entry of Medication Orders. *PloS One*, 2014 in press.

# Problem List Placement

## Easy Meds

**Table 2 – Alert validity, problem list yield, and problem addition accuracy by alert type**

Target diagnosis group name	Number of alerts (2-months)	Sample size	Valid alerts (%)	Alert yield (%)	Problem addition accuracy (1 – false positive's) (%)
Hyperlipidemia	442	100	100	72 ± 4 <sup>a</sup>	94 ± 3
Diabetes Mellitus	204	100	99 ± 1	79 ± 4	100
Hypothyroidism	161	100	95 ± 2	84 ± 4	93 ± 3
Asthma/COPD	139	100	93 ± 3	79 ± 5	92 ± 3
HIV	49	49	76 ± 6	69 ± 7	100%
Ischemic stroke	16	16	69 ± 12	62 ± 12	80 ± 13
Total	1011	465	96 ± 1	76 ± 2	95 ± 1

<sup>a</sup> All results are proportion ± SEP. The total proportions are weighted by the number of alerts in each alert type.



# Problem List Placement

## Hard Meds

**Table 1** Descriptive characteristics of the observations for the 3 medications

Drug	PPI (Lansoprazole)	IVIG (Flebogamma®)	Factor VIIa (NovoSeven®)
Duration of Trial (days)	60	93	175
Alerts	1404	118	77
Unique Patients	862	59	25
Alerts excluded due to appropriate previously documented diagnosis	332	19	42
Alerts excluded due to a diagnosis placed from a previous alert	69	16	42
Alerts displayed to clinicians	1072	99	25
Admissions with an alert	873	55	25
Study sample size	100	55	25
<i>Yield of indications<sup>1</sup></i>	<i>95±2%</i>	<i>75±6%</i>	<i>96±3%</i>
<i>Problem list placement yield<sup>1</sup></i>	<i>38±5%</i>	<i>22±6%</i>	<i>64±10%</i>
<i>Problem list accuracy<sup>1</sup></i>	<i>24±7%</i>	<i>75±13%</i>	<i>38±12%</i>

<sup>1</sup>Yields and accuracy are presented in terms of mean and standard errors.