



Come Together

What Keeps You Up at Night

Roger Holliss, CHES National



What Keeps You Up at Night?



Goals



- ✓ Review of current environment,
- ✓ Mgt. Styles,
- ✓ Top issues &
- ✓ Opportunities.

Know Your Audience



- ✓ Position/Role,
- ✓ # of Immediate Mgrs.,
- ✓ # of Departments.

Know Your Audience

of Departments:

- ✓ Eng'g./ Maint.,
- ✓ Bio-Med,
- ✓ Redevelopment,
- ✓ Parking,
- ✓ Security,
- ✓ Housekeeping,
- ✓ Other ???.



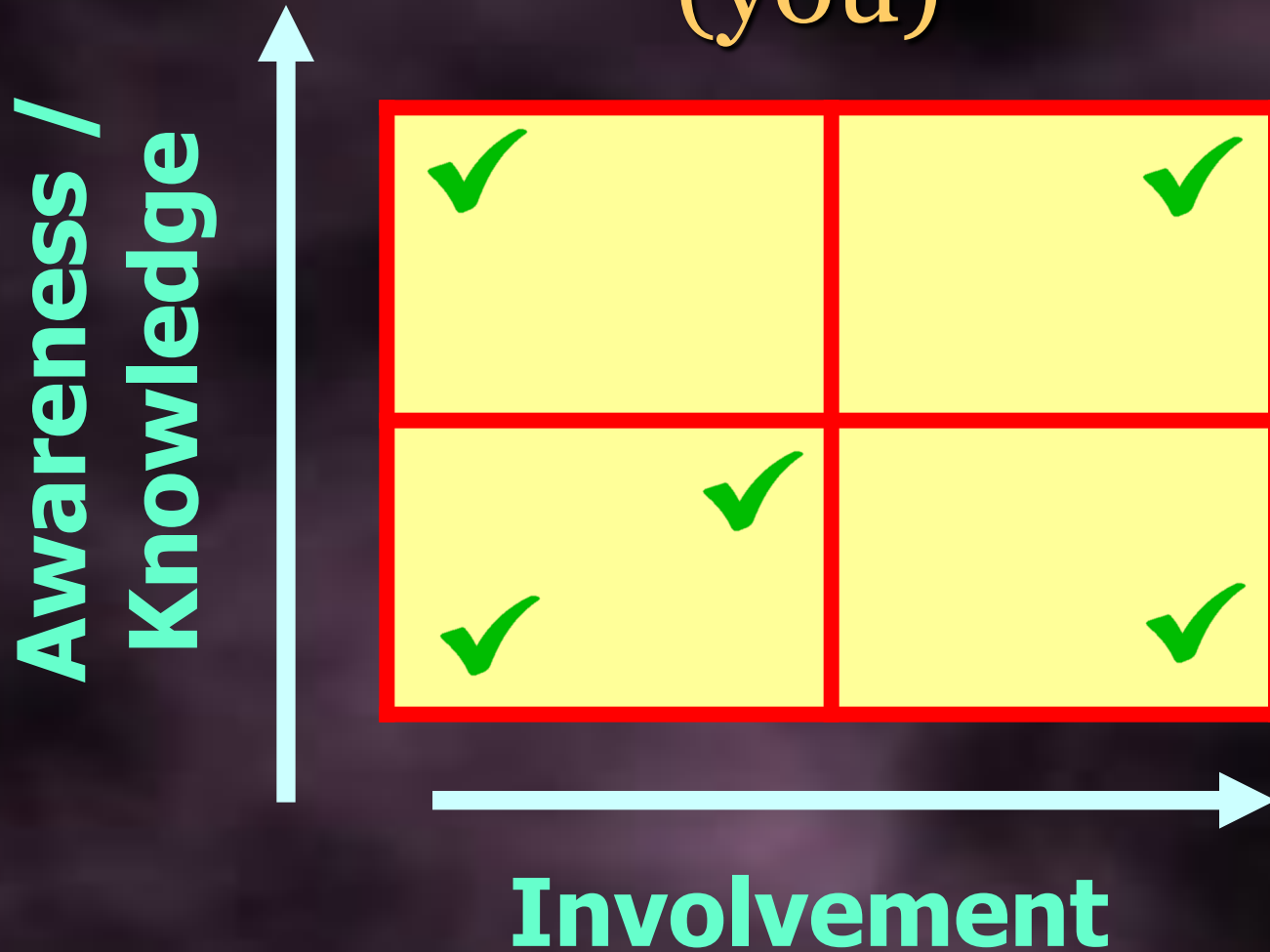
Today vs. Yesterday (overall)

- FCI of healthcare ↑
- Staff Turnover ↑
- Healthcare Demand vs. Capacity ↑
- Fin'l. Demands (oper'n. & cap.) ↑
- Clinical Complexity ↑
- Climate Change Impact ↑

What Keeps You Up at Night

- ✓ Meet Budget/ Fiscal Deficits,
- ✓ Staff Retention,
- ✓ Aging Infrastructure (poor FCI),
- ✓ Clinical Capacity Demand vs. Supply,
- ✓ Patient Environment,
- ✓ Capital Req't. vs Capital Funding,

Mgmt. Styles (you)

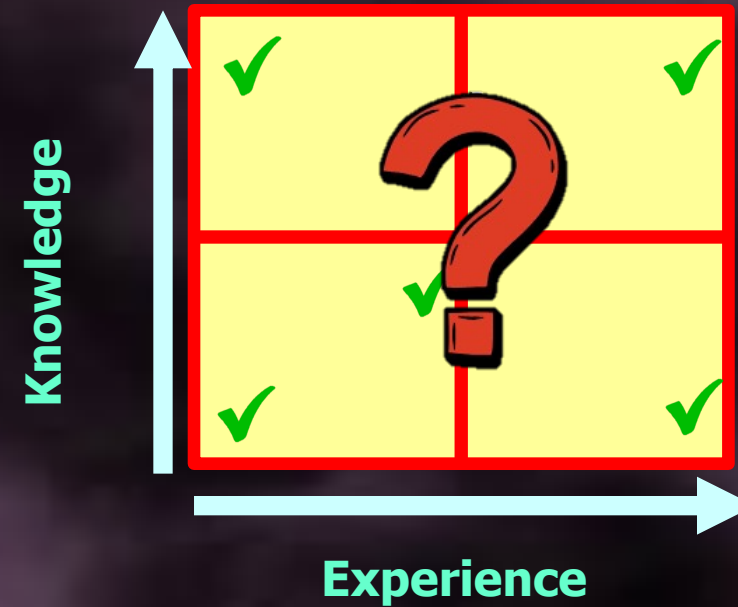
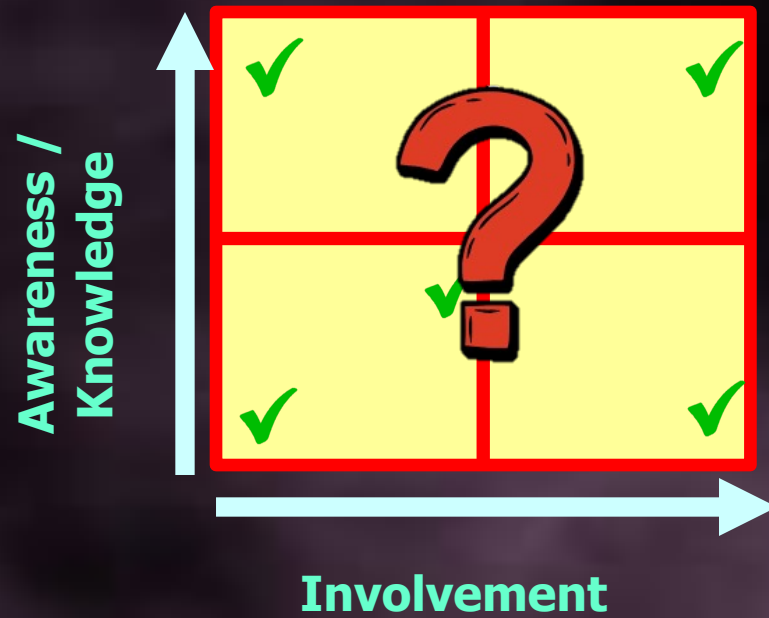


Mgmt. Styles (your manager)

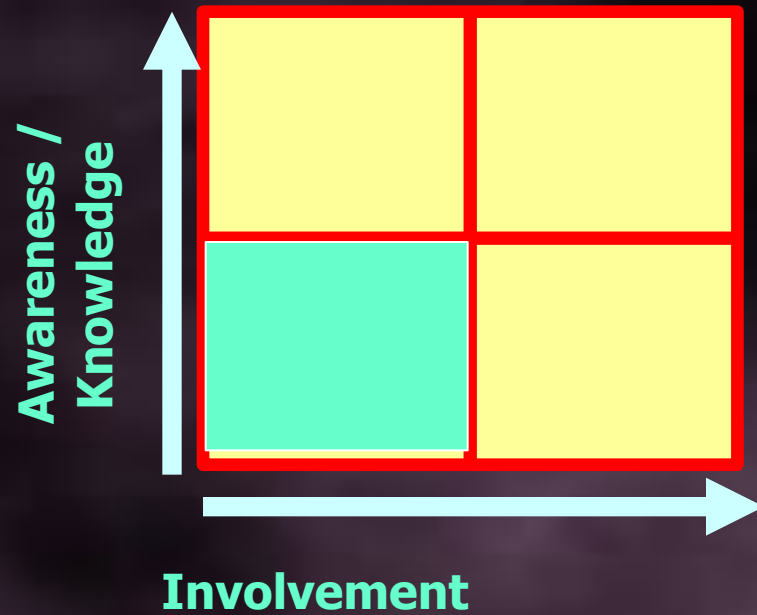


You

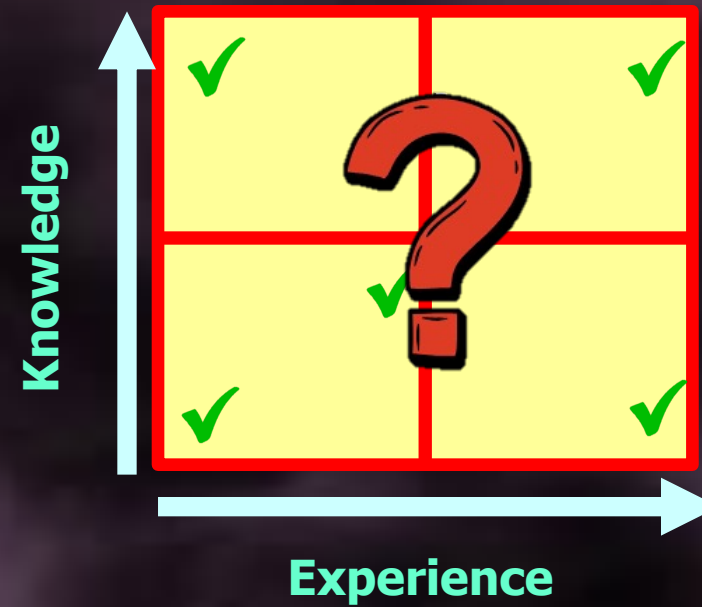
Your Mgr.



You

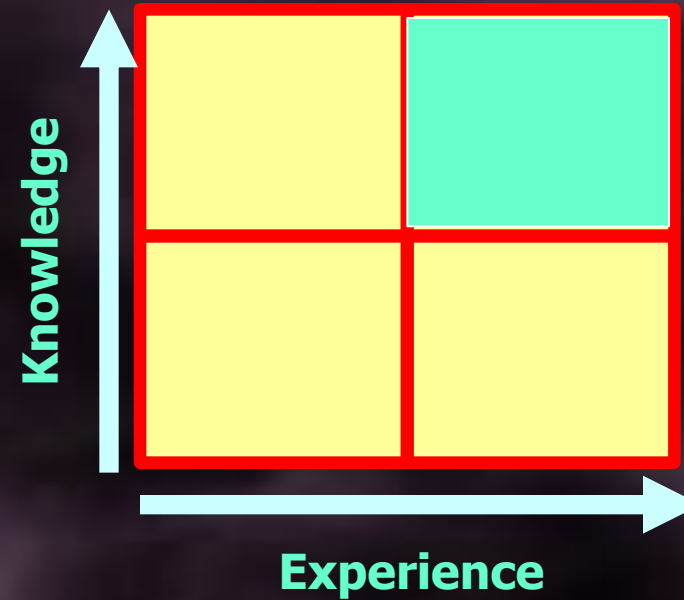
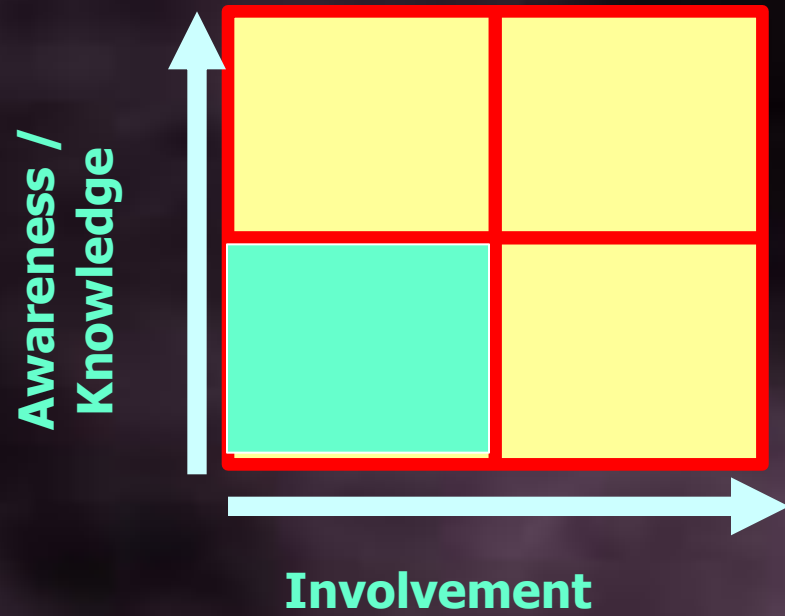


Your Mgr.

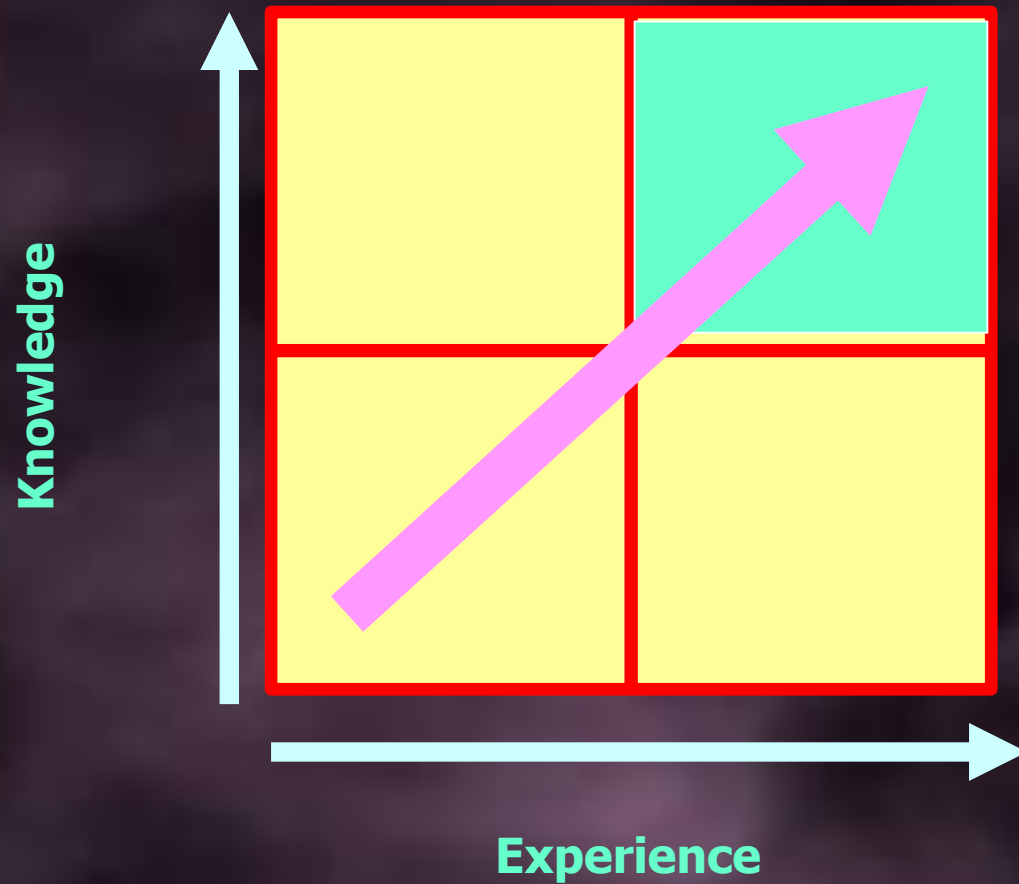


You

Your Mgr.



Your Mgr.



HCF Executive & Your Mgr.

	C-Suite	Eng'g. / Fac. Mgt.
Academic	BA's , MHAdmin,	Eng'g., Fac. Mgt. Tech's
Prof'l. Designation	CA's ,	P. Eng's, Cert. Fac. Techs.
Professional Ass'ns.	CPA (Ontario)	PEO
Tech'l. Ass'ns.	CCHL	CHES, IMA, BOMA

What Keeps You Up at Night

The screenshot shows the CHES SCISS website homepage. At the top left is the URL 'ches.org'. The main header features the 'CHES SCISS' logo, a search bar, and a 'Login' button. Below the header is a navigation menu with links for HOME, ABOUT CHES, CHES MEMBERSHIP, CHAPTERS, COMMITTEES, PD, EVENTS, INDUSTRY PROFILES, RESOURCES, and MEMBERSHIP TOOLS. The main content area features a large image of two men in hard hats and suits reviewing blueprints. A quote is overlaid on the image: "If you are in any way involved with healthcare facilities, their infrastructure or equipment, you should be involved in CHES." attributed to Peter Whiteman, Saskatchewan. Below the image is a section for the 'CHES National Conference 2024 Sept. 8-10'. To the right of this section are tabs for 'Features', 'Twitter', and 'LinkedIn'. Below the conference section is a thumbnail for the 'CHES SCISS' National Conference 2024, with text indicating the dates (September 8-10) and location (Halifax). To the right of the conference section is a thumbnail for the 'Healthcare Facilities' magazine, featuring the article 'KEEPING KIDS SAFE'.

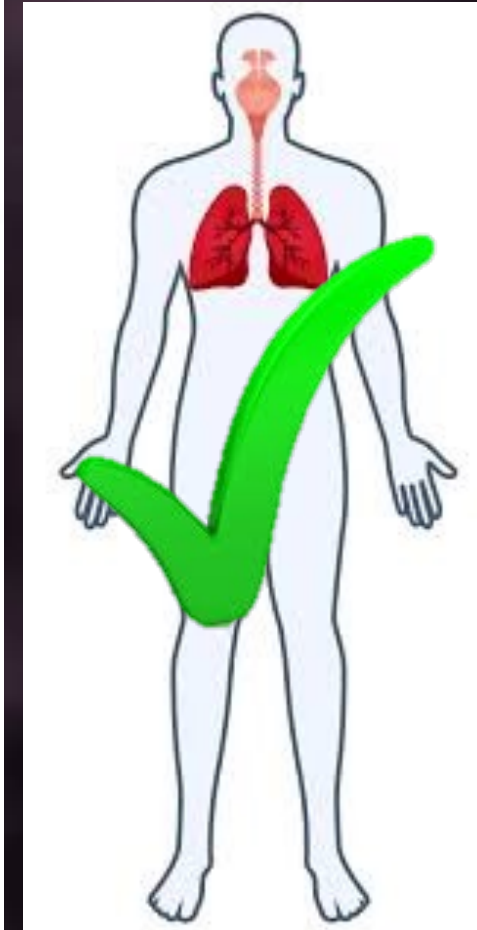
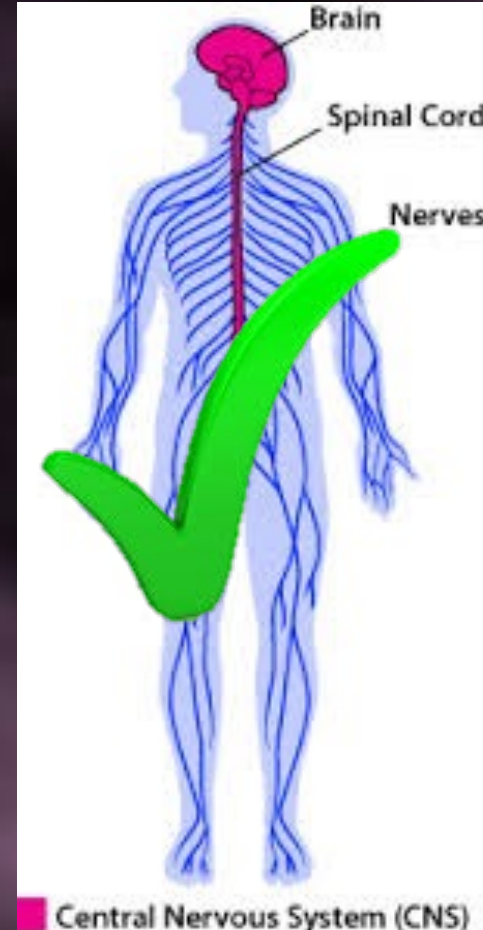
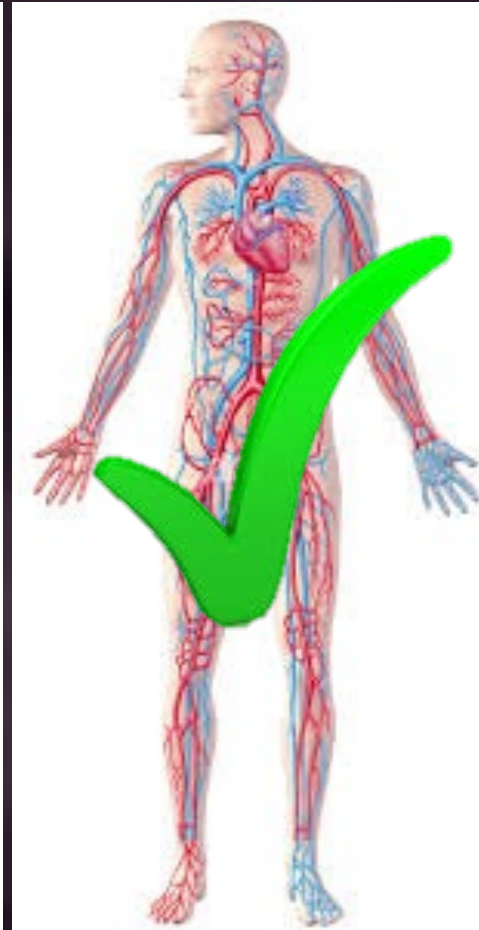
CHES.org

Today vs. Yesterday (Facilities/Infrastructure)

- FCI of healthcare ↑
- Staff Turnover ↑
- Healthcare Demand vs. Capacity ↑
- Fin'l. Demands (oper'n. & cap.) ↑
- Clinical Complexity ↑
- Climate Change Impact ↑

What Keeps You Up at Night

We are physicians of our healthcare facilities ...



What Keeps You Up at Night

We are physicians of our healthcare facilities ...



Skeletal System:

- **Support structure:**
 - **Bricks & mortar,**
 - **Walls,**
 - **Floors,**
 - **Windows,**
 - **Roofs.**

What Keeps You Up at Night

We are physicians of our healthcare facilities ...

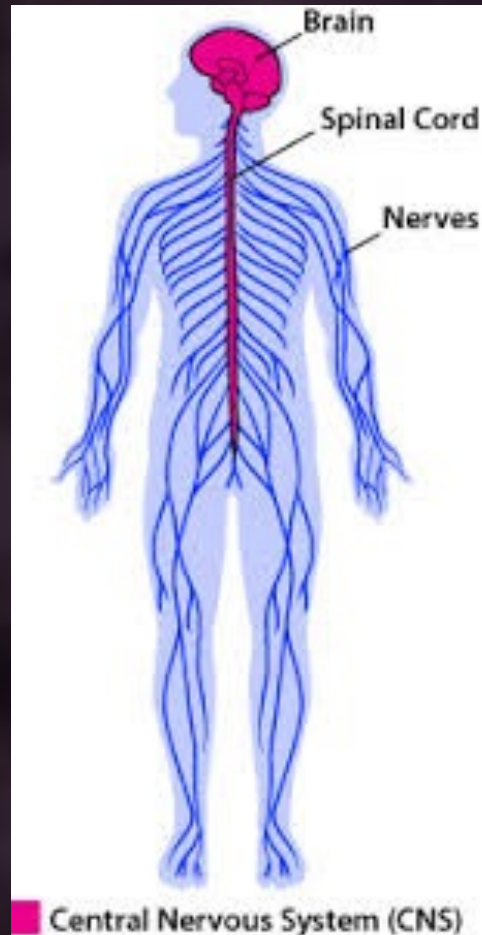


Circulatory System:

- **Domestic water**
- **Hot water,**
- **Hot water recirc.,**
- **RO water,**
- **Sanitary lines,**
- **Storm lines.**

What Keeps You Up at Night

We are physicians of our healthcare facilities ...

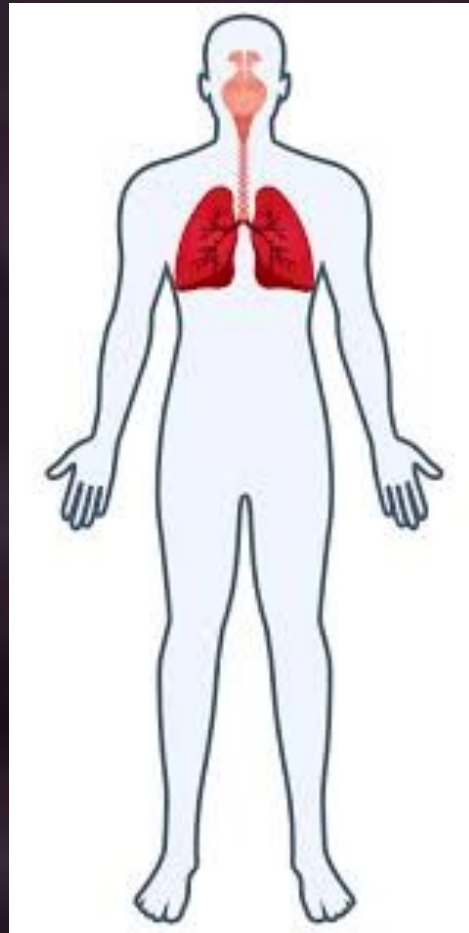


Nervous System:

- **Regular electricity,**
- **Emergency power,**

What Keeps You Up at Night

We are physicians of our healthcare facilities ...

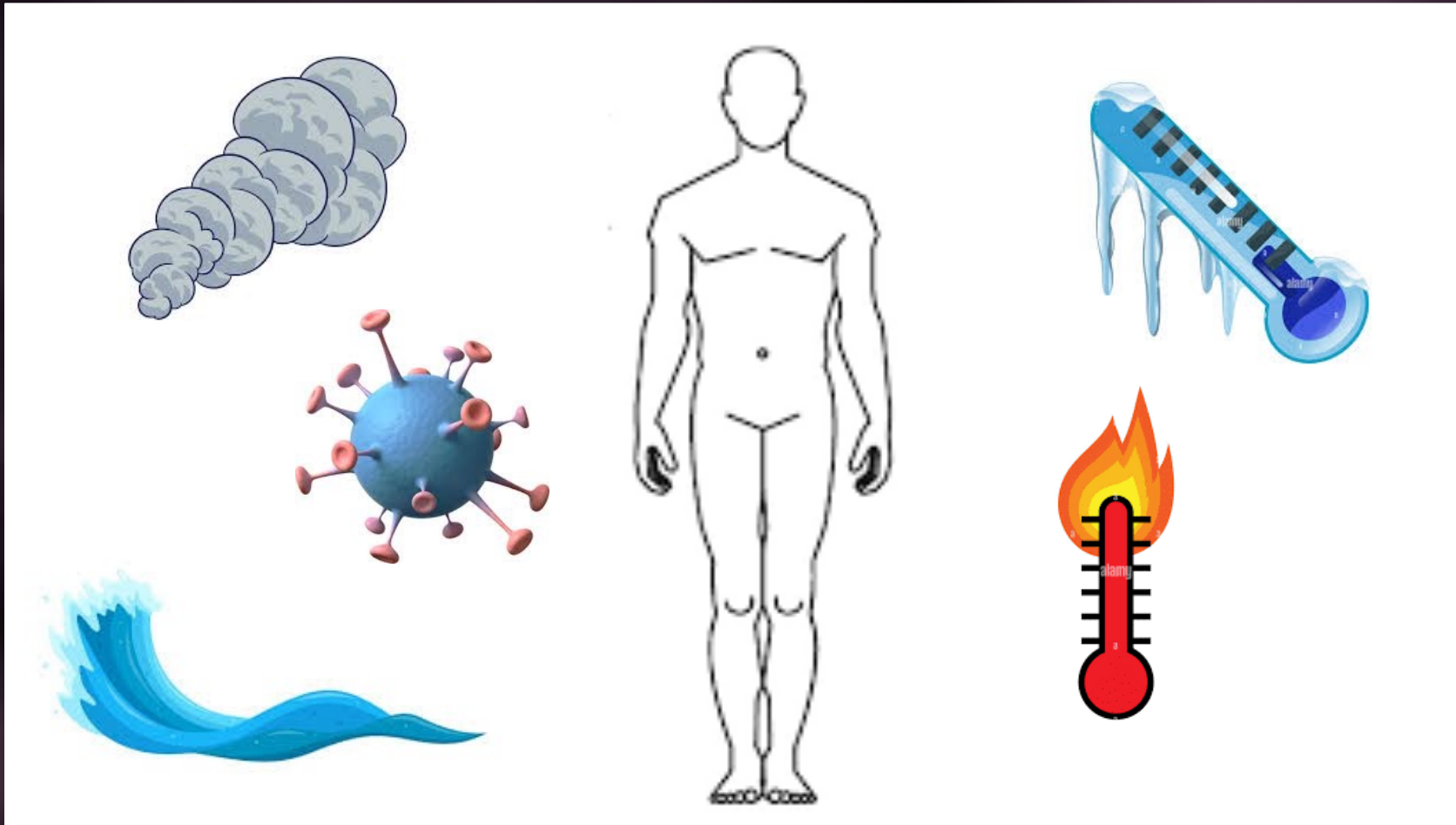


Respiratory System:

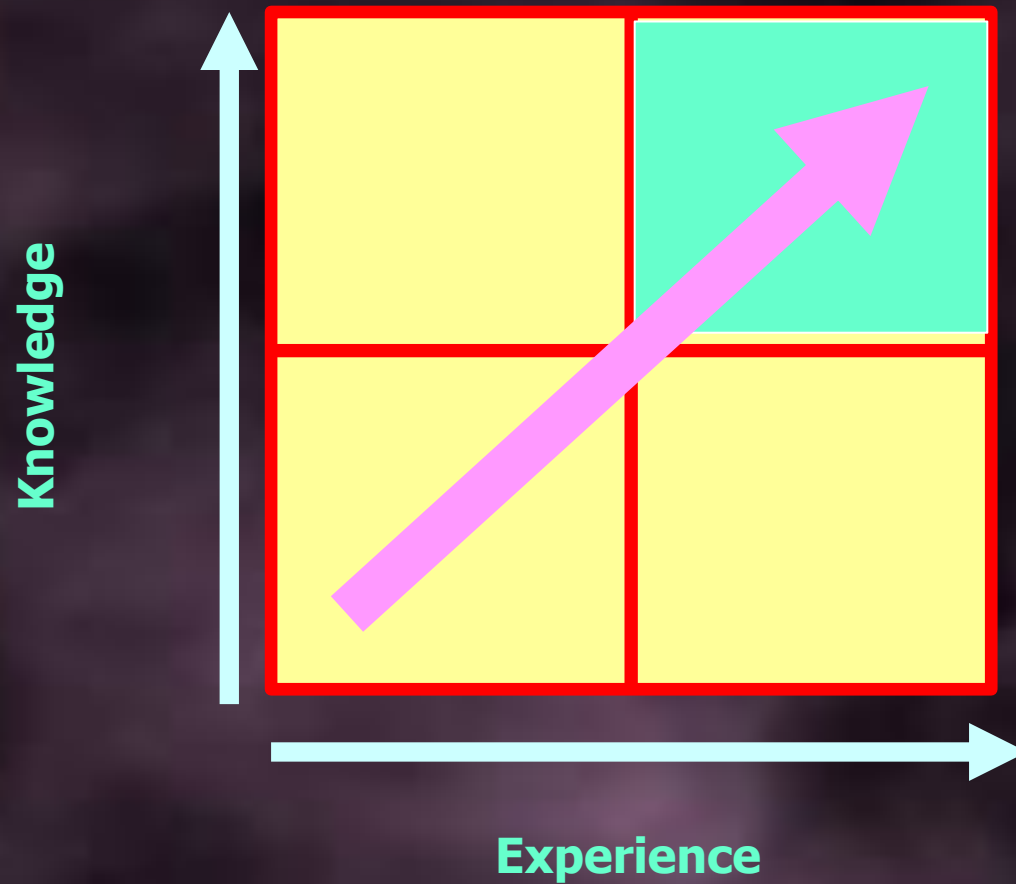
- **HVAC systems,**
- **Medical gases.**

What Keeps You Up at Night

External Pressures:



Your Mgr.



What Keeps You Up at Night

Asset Management:



What Keeps You Up at Night

Asset Management:

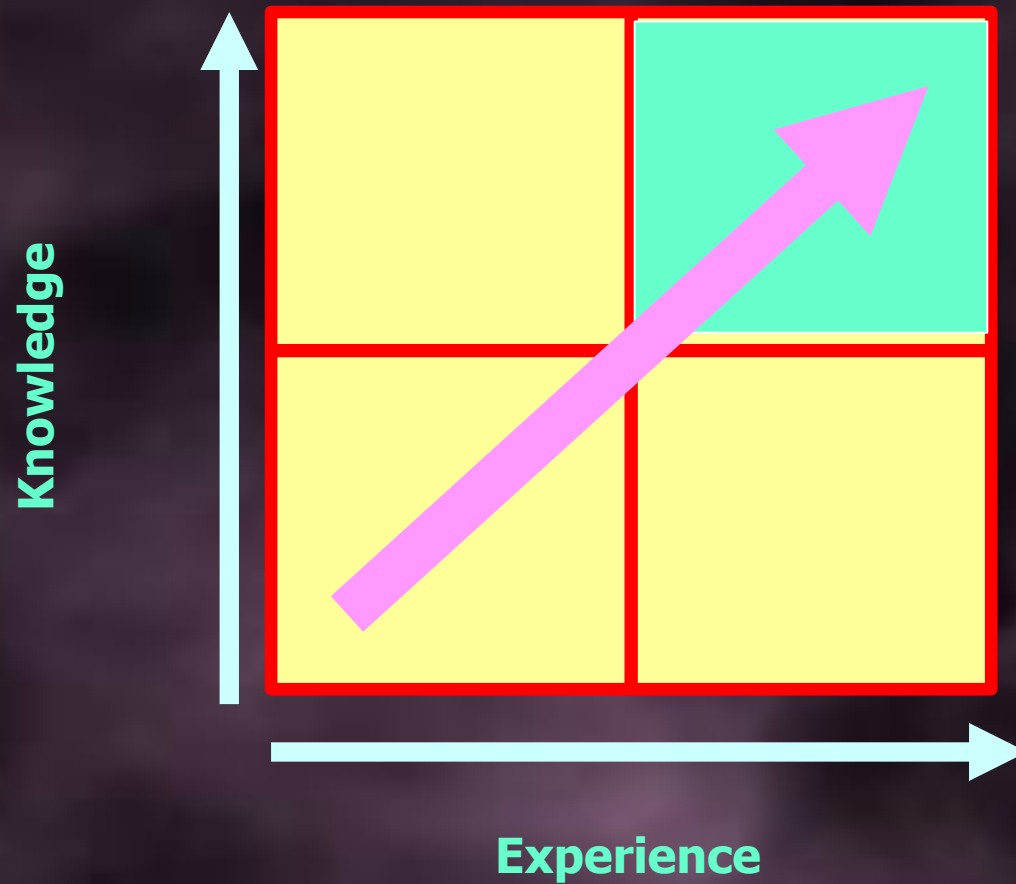


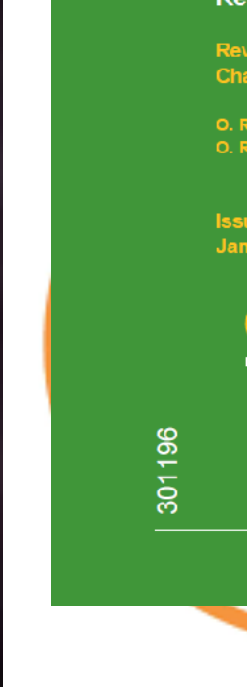
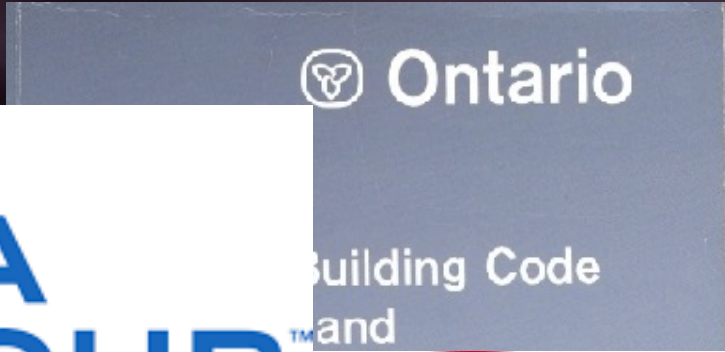
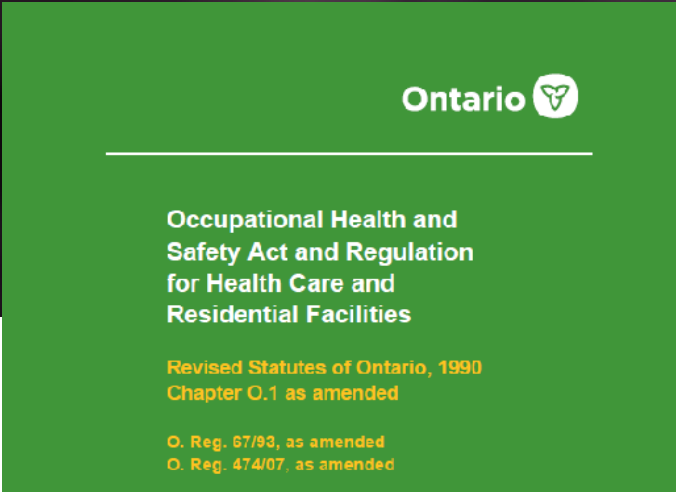
- 30 AHU's @ \$ 700 K (installed)
= \$ 21,000 K
- Ave. # of capital asset (SMGH – CMMS)
= 5,000 @ ave. replacement value of \$ 25 K
= \$ 125,000 K

Total asset value including "brick & mortar," property, security etc.

= 1/2 billion dollars

Your Mgr.





CSA Healthcare Stds.

How many CSA health care stds. are there?

Over 200 !!

How many CSA health care stds. are there
specific to HCF infrastucture & facilities mgt?

Over 30!!

How are CSA Standards Used

Legal vs. Voluntary



Legally Referenced (not exhaustive)

- CSA Z 317.2 15 "Special Requirements for HVAC Systems in Health Care Facilities"
- C282-15 "Emergency Elect'l. Power Supply for Bldgs."
- Z 7396.1-17 "Medical Gas & Pipelines"
- CSA Z 8000 (Mb, NWT, Ont. (as a check for funding))
- CSA Z 94.1-15 "Industrial Protective Headwear"
- CSA C 22.2-18 Cdn. Electrical Code

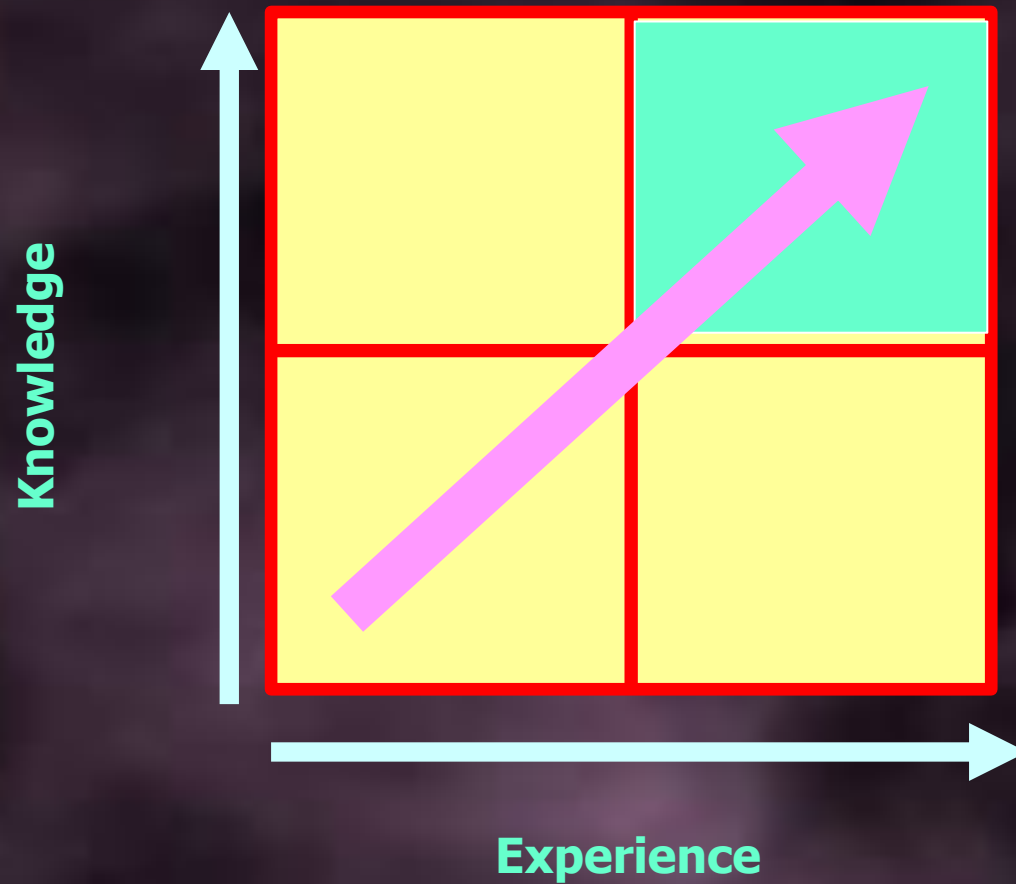
What Keeps You Up at Night

Authorities Having Jurisdiction (AHU)

- Who is this for you?
- Municipal bldg. inspectors (plumbing , renos etc.)
- TSSA (elevators),
- ESA (electrical),
- Inspection bodies (medical gas)
- Others



Your Mgr.



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What Keeps You Up at Night

You Don't Know What You Don't Know ...

**... your Engineering department is
administering drugs to your patients?**

What Keeps You Up at Night

You Don't Know What You Don't Know ...

**... your Engineering department is
administering drugs to your patients?**



What Keeps You Up at Night

You Don't Know What You Don't Know ...

**... there are different monographs of O₂
that are clinically required
depending on the patient?**

- O₉₃
- O₉₅
- O₉₈



How are CSA Standards Used

Legal vs. Voluntary



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What Keeps You Up at Night

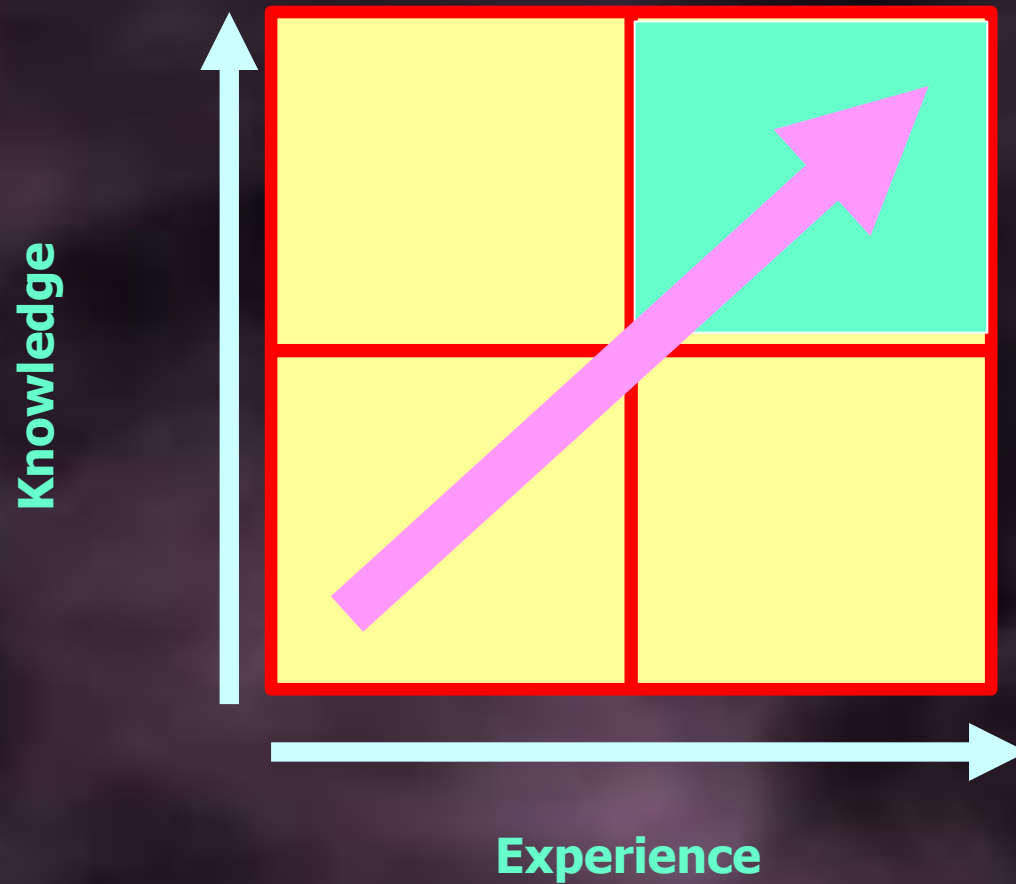
You Don't Know What You Don't Know ...



CSA Z7396.1:22 Annex T2 "Qualified Operator"

T.2.4 "Experience" ...Qualified operator shall not be self appointed.

Your Mgr.



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Standards 101

Due Diligence

(Roger Holliss' litmus test)

Something bad happens on your watch:

- Property damage,
- Personal injury
- ???

... and you're going to court.



What Keeps You Up at Night

Cost of Compliance vs. Non-Compliance

Compliance	Non-Compliance
operation/clinical losses downtime (planned / controlled)	operation/clinical losses downtime (unplanned / reactive)
cost of CSA stds. (~ \$ 1,000/yr.)	HAI incidents @ \$ 75K/case (illness)
training	training
cost of implementation	cost of implementation
	legal costs
	Personnel leaving
	Bad PR & adverse impact to Fdn.
	Bad PR/funding issues with ministry
	HAI incidents @ \$ 75K/case (illness)

What Keeps You Up at Night

- 15 major healthcare stds.
- @ ~ \$ 300/std.
 > \$ 4,500 value

CHES Member cost = **\$ 0**
(read-only)

CHES Member cost = **\$ 296**
(full Adobe fns.)

Electrical

C282 -2015 - Emergency Electrical Power Supply for Buildings

Z462 - 2015 - Workplace Electrical Safety

Health and Safety

Z10535.2 - 2017 - Lifts for the Transfer of Persons - Installation, Use, and Maintenance

Z1600 - 2017 - Emergency and Continuity Management Program

Z317.1- 2016 - Special Requirements for Plumbing Installations in Health Care Facilities

Z317.10- 2015 - Handling of Health Care Waste Materials

Z317.13- 2017 - Infection Control During Construction, Renovation, and Maintenance of Health Care Facilities

Z317.14 - 2017 - Wayfinding for Health Care Facilities

Z317.2 - 2015 -Special Requirements for Heating, Ventilation, and Air Conditioning (HVAC) Systems in Health Care Facilities

Z317.5 - 2017 - Illumination Systems in Health Care Facilities

Z32 - 2015 - Electrical Safety and Essential Electrical Systems in Health Care Facilities

7396.1 – 2017 - Medical Gas Pipeline Systems - Part 1: Pipelines for medical gases, medical vacuum, medical support gases and anaesthetic gas scavaging systems

Z8000 - 2011 - Canadian Health Care Facilities

Z8001 - 2013 - Commissioning of Health Care Facilities

Z8002 - 2014 - Operation & Maintenance of Health Care Facilities

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What Keeps You Up at Night

Education (staff retention)

- General knowledge / awareness
- New technologies,
- New processes,
- New standards/ regulations and
- Success planning.

What Keeps You Up at Night

Education (staff retention)

- CSA & CHES,
 - Infection Control,
 - Z 8000 HCF Design
 - Medical Gases:
 - Intro,
 - Qualified Installers,
 - Qualified Operators, &
 - Qualified Service Technicians.

What Keeps You Up at Night

Education
(staff retention
patient envir.)

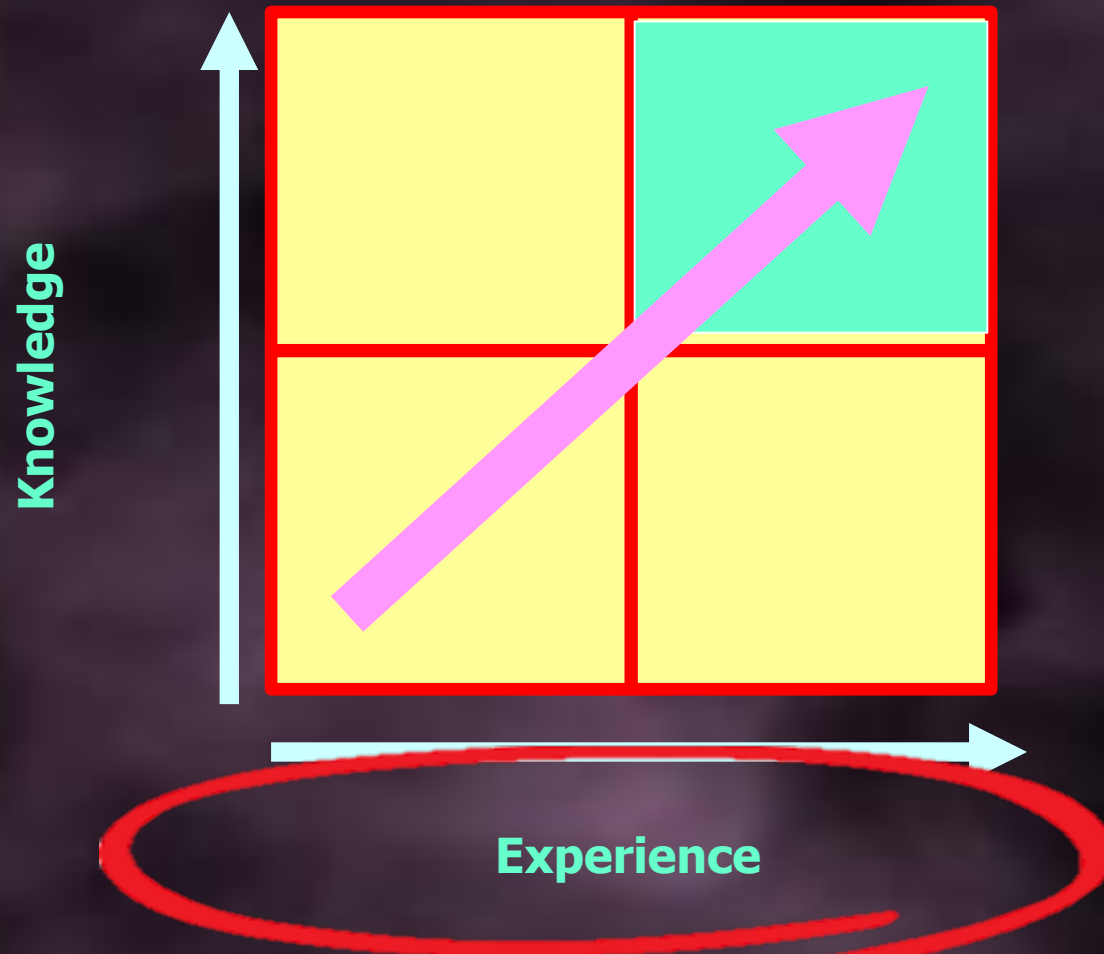
- 1) **Wed. Feb. 14/24 - Ductwork Leakage - Effects and Efficiency 2024** Speakers: Josh Lewis, CEM, CMVP, VP Energy Engineering at Nerva Energy Group Inc.
- 2) **Wed. Mar. 20/24 - Using Artificial Intelligence (AI) to Harness Free Energy to Optimize Heating, Ventilation, and Air Conditioning (HVAC) Efficiency**
Speaker / Tobias Janes, CEM, Chief Technology Officer at EcoPilot Canada | USA
- 3) **Wed. Apr. 17/24 - Beyond Directions: Designing Effective Wayfinding Systems for User Experience /**
- 4) **Wed. May 15/24 - Climate Change and Mould in Your Healthcare Facility /**
- 5) **Wed. Jun. 26/24 - Retrofit for Sustainability /**
Speaker : Chris Patterson CEM, LEED GA, Fitwell Ambassador, Automated Building Systems Technologist National Healthcare Segment Lead, Schneider Electric
- 6) **Wed. Oct. 2/24 - Major changes in the 2022 edition of the Infection Control during Construction, Renovation and Maintenance in Health Care Facilities Standard**
4 Speaker: Mike Hickey, MF Hickey Consulting; Gordon Burrill, P.Eng., CCHFM, FASHE, CHFM, CHC
- 7) **Wed. Oct. 30/24 - Applying the Z317.13:22 Standard to Renovation Projects /**
Speaker: Jessica Fullerton, B.Sc., M.Sc., CIC; Mike Hickey, MF Hickey Consulting
- 8) **Wed/ Nov. 27/24 - Applying Infection Prevention & Control Practices for Hospital Maintenance Workers /**
Speaker: Jessica Fullerton, B.Sc., M.Sc., CIC; Gordon Burrill, P.Eng., CCHFM, FASHE, CHFM, CHC

What Keeps You Up at Night

Education
(staff retention)



Your Mgr.



What Keeps You Up at Night

Pseudo Experience

What if ...

...you had access to the collective knowledge /experience 1,400 HCF professionals from all across the country...

- > 800 actual HCF mgrs.
- > 100 leading HCF
 - Suppliers,
 - Service org'ns. &
 - Eng'g./Consulting firms

What Keeps You Up at Night

Pseudo Experience

How ??



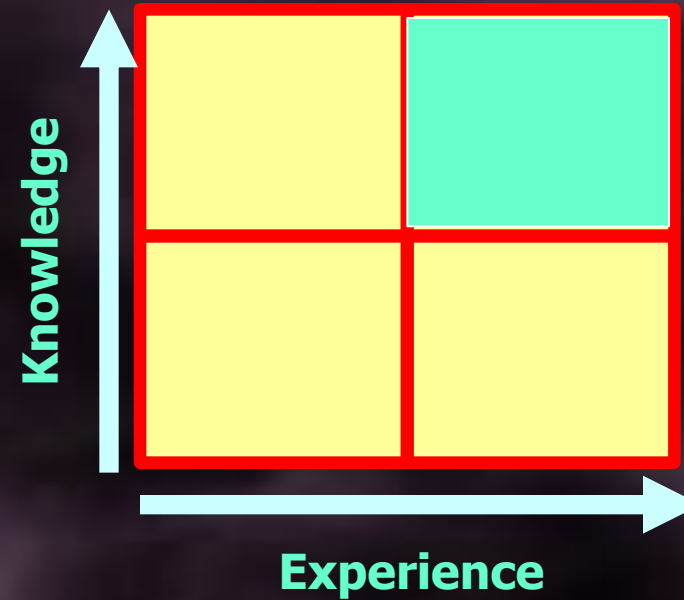
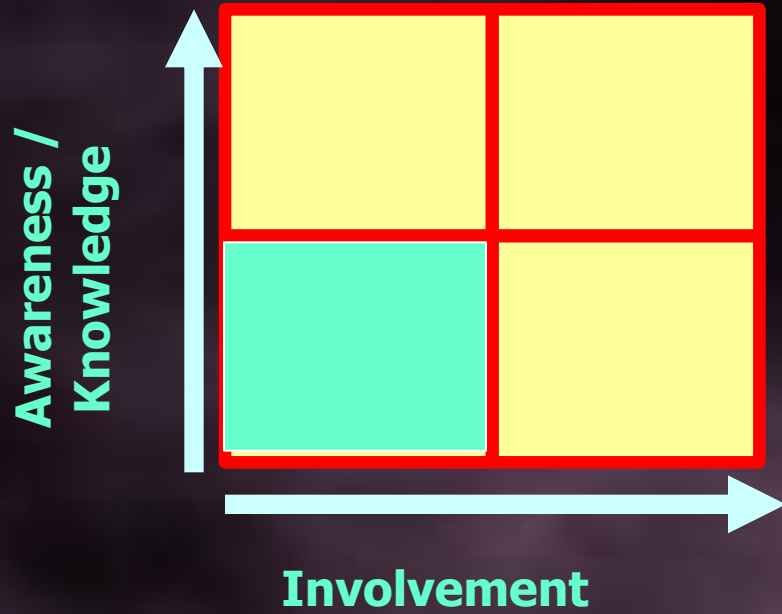
- CHES Chat (post a question)
- Call anyone, anytime
- Chapter (provincial conferences)
- CHES National conferences
- Education days
- Access to CHES representatives sitting on CSA stds.

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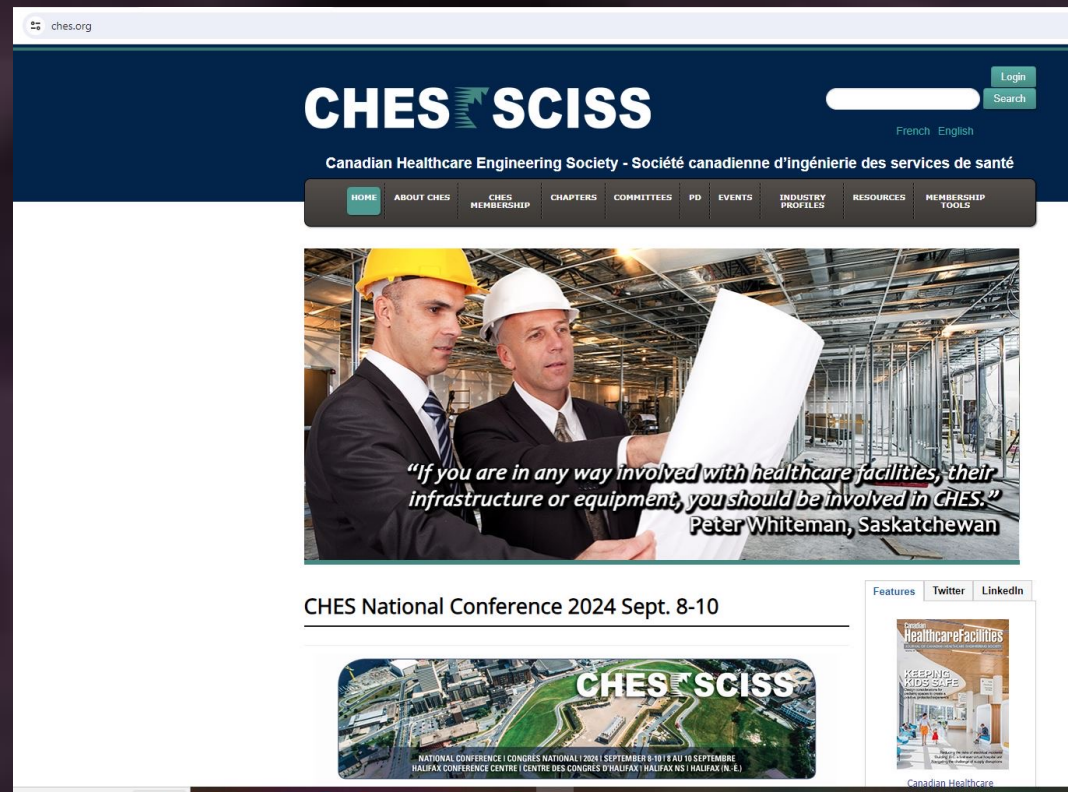
You

Your Mgr.



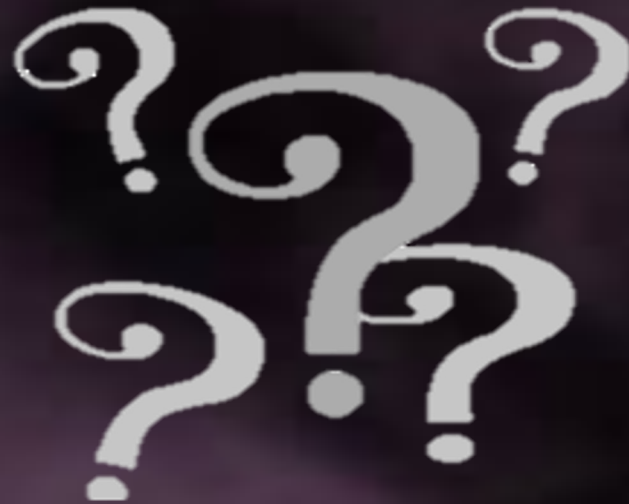
What Keeps You Up at Night

“Jerry McGuire” - Help us help you!!



CHES.org

Thank you for your time...
... come visit at our lounge.



Roger.holliss@outlook.com

CHES.org