

THE ROLE OF INFORMATIONISTS IN *DELIVERING GEOSPATIAL INTELLIGENCE TO HEALTH CARE PROFESSIONALS*

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Objectives

- Overview of our parent grant
- Our role and aims
- Lessons learned, informationist value, challenges



Our Project

- CHICA-GIS
 - Child Health Improvement through Computer Automation (CHICA)
 - Geographic Information System (GIS)

"Delivering Geospatial Intelligence to Health Care Professionals"

Overview of our parent grant



What is CHICA?

- CHICA—Child Health Improvement through Computer Automation
- A pediatric computer-based decision support system (CDSS)
- Used in 4 pediatric clinics in central Indiana
- Connected with Regenstrief Medical Record System



What makes up CHICA?

- **Prescreener Form (PSF)**
 - Bubble form filled out by parent or child for check-in at clinic and health care worker
 - 20 yes/no questions
 - Scanned into CHICA
- **Physician Worksheet (PWS)**
 - Generated by CHICA from data on PSF and EMR data
 - 6 targeted physician preventive care reminders checked off by physician
- **Just-in-Time (JIT) handout for patients**

8087

CHICA Pre-Screening Form**MRN: #99999999-7**

* Height: . in. Uncooperative / Unable to Screen:
 Vision Hearing BP

* Weight: # oz. Vision Left: 20/

* HC: . cm. Vision Right: 20/

BP: / Left Ear @ 25db: P F
 4000
 2000
 1000
 500

Temp: . deg. F Right Ear @ 25db: P F
 4000
 2000
 1000
 500

Pulse: /min RR:

Name: Patient, Jenny D**Age: 9 mo DOB: Dec 20 2004****Date: Sep 26 2005 1:30PM**Pulse Ox: %

Right Ear @ 25db: P F

4000 2000 1000 500

Box For Nursing Use Only - Box For Nursing Use Only - Box For Nursing Use Only - Box For Nursing Use Only

Parents: Thank you for answering these questions about your child. The answers will help your doctor provide better quality of care. If your child is age 11 or older, he/she should answer the questions privately. Answers are confidential, but if you prefer not to answer that is allowed. You may want to talk about these questions with your doctor.

Please fill in the circles completely with a pencil or pen.

Y N

Can Jenny feed herself a cracker or cookie? If you've never given her one, fill in no.

Y N

Is Jenny having pain today?

Has Jenny ever slept on her stomach?

Does Jenny ever copy you when you make some speech sounds like kissing, coughing or saying a word?

Has Jenny recently visited Asia, Africa, Latin America, or the Middle East?

Does Jenny have sickle cell disease?

Does anyone smoke in Jenny's house?

Has your partner kicked, hit, or slapped you?

Was Jenny's birth weight less than five pounds and eight ounces (2500 grams)?

Do you have a working smoke detector in your home or apartment?

Does Jenny ever use a walker?

Have you set your hot water heater to less than 120 degrees F or 49 degrees C?

Do you feel safe in your home?

Have you attached the Poison Center phone number to the phone in Jenny's home?

Do you know what to do if Jenny is choking?

Has Jenny ever been alone in or near a bathtub, swimming or wading pool, or other body of water?

Has your partner or another adult threatened or hurt your children?

Is Jenny receiving Fluoride to help protect her teeth?

Does Jenny's car seat face forward?

Do you always place Jenny on her back or side to sleep?

Preguntas en español al otro lado.

SEP 26 2005 7:30PM

7582212333



Patient: Patient, Jenny D (F) MRN: #9999999-7
 DOB: 12/20/04 Age: 9 mo Apt. Date: Sep 26 2005
 Doctor: Paul Biondich Apt. Time: 7:30PM

Vital Signs:
 Height: 27.5 in. (59 %)
 Weight: 14.5 lb. (2 %)
 6.6 kg.
 BMI: 14 (%)
 Head Circ: 44.0 cm. (58 %)
 Temp: 101.7 F
 Pulse: 100
 RR: 20
 BP: 90/60
 Pulse Ox: NM %
 Hear (L): N Hear (R): N

Physical Exam: NI Abnl
 General:
 Head:
 Skin:
 Eyes:
 Ears:
 Nose / Throat:
 Teeth / Gums:
 Nodes:

History and Exam Comments: Additional notes on back...
 mom/dad both present
 -CTA (B) SW
 -RRR SW

Physician Preventive

Jenny had an inconclusive sickle cell screen on 12/21/2004. It's recommended that children with Hgb A+S+F be rechecked after they reach 6 months of age:

- Child needs retesting->
- Child has been rescreened->
-
- Ordered screen & path confirm
- Sickle Cell POSITIVE
- Sickle Cell NEGATIVE or Trait

Sleep/appetite problem Mom not present

Infants with risk factors of prematurity or a family history of deafness should have yearly hearing screening between 6 months and 3 years. This child either has a positive or unknown risk factor of

Milestones to eval today. Check if passed.

Prematurity -> Refer for Audiology screening Feed Self Take 2 Cubes
 Family history of deafness-> Refer for Audiology screening Stand Holding On Imitate Speech Sounds
 No risk factors present Failed Any -> Development referral

Care Reminders

Assessments and Plan: Medication Education Performed: Y N N/A

9mo ± TB risk factor? → will rescreen
 Hgb A+S+F ... will rescreen. Needs Pediarix #3
 PV Hib #3
 Pneum #3

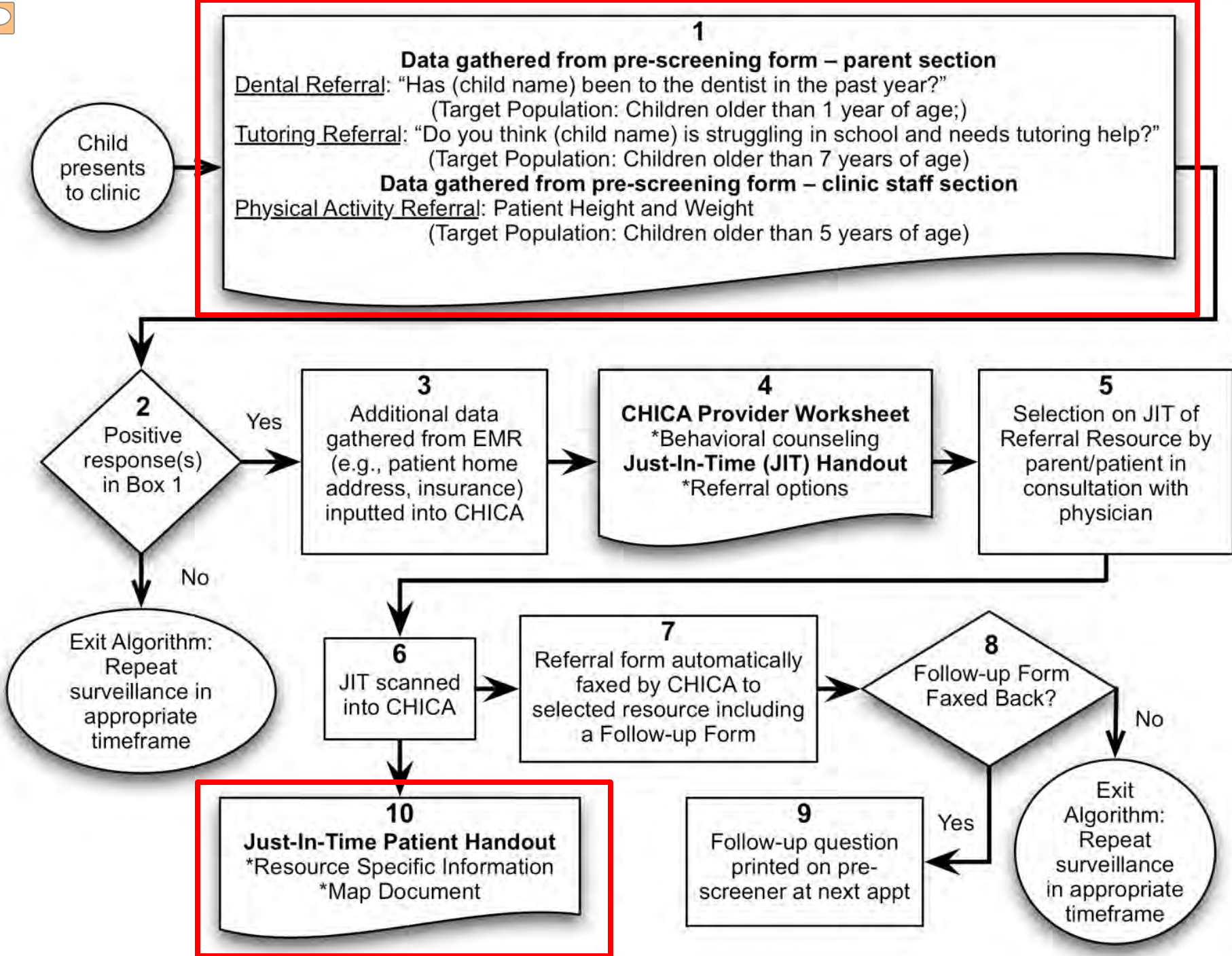
Staff: Signature: _____





What is CHICA-GIS?

- Creating Just-in-Time handouts (JITs), specifically tailored to exercise, dental clinics, & academic support (tutoring)
- GIS component of the JIT, working with a local GIS partner (Polis Center)



Just In Time handout- Exercise

9159625355

Physical Activity Resource

Patient: Patient, Practice

Date: Jul 30 2012



From: "Expert Committee Recommendations on the Prevention, Assessment, and Treatment of Child and Adolescent Overweight and Obesity." http://pediatrics.appublications.org/content/vol120/Supplement_4/index.shtml

Imagine something that would make you live longer, feel stronger, and be healthier – physical activity is that one thing.

FOR PARENTS & PATIENTS

- Get 60 minutes every day of moderate physical activity
- Limit screen time to less than 2 hours per day
- Remove TV / computer from bedroom
- Limit sugary beverages
- Eat 5 servings of fruits and vegetables every day
- Eat breakfast daily
- Encourage family meals
- Decrease the number of times you eat out at restaurants

FOR PHYSICIANS

- Assess daily activity patterns
- **USE MAP AND CONTACTS ON BACK OF THIS PAGE TO CONNECT FAMILY WITH A COMMUNITY RESOURCE FOR PHYSICAL ACTIVITY**
- Assess dietary behavior
 - Snacking habits
 - Emotional eating
- Assess attitudes
 - Perception of body weight & body image
 - How does parent feel about child's weight?

FOR PHYSICIANS

- Readiness / barriers to change
- On a scale of 1 to 10, how ready are you to start making changes in how you eat or how you exercise?
- Laboratory workup
- Risk factors or unknown family history:
 - Measure BP, and consider lipid panel
 - In those ≥ 10 , consider glucose & LFT's

Doctor: Doctor Provider

Clinic: Pecar Health Center

Clinic Contact Info: (317) 266-2921

Other resources:
Fit City
<http://www.fitcity.org>

INShape Indiana University
<http://www.in.gov/inshape>

1258625357

Patient: Patient, Practice

Date: Jul 30 2012



1 Zumba at the Walker

Zumba

Street 617 Indiana Ave
Zip 46202 Phone (317) 236-2099
Times Mon 5:30pm-6:30pm
Ages
Costs \$8 for a class or sign up for 6 weeks for \$40; no

2 Indy Parks - Fall Creek and 16th Park

ball fields, basketball courts, tennis courts, open

Street W 16th St & Fall Creek Pkwy E Dr
Zip 46202 Phone (317) 327-7808
Times dawn to dusk
Ages any
Costs free

3 IU Natatorium

indoor pool, fitness center, free weights, cardio

Street 901 W New York St
Zip 46202 Phone (317) 274-3518
Times Mon-Thu 5:30am-8:00pm, Fri 5:30am-7pm
Ages any age
Costs \$6 per visit, one month membership \$42.00

4 IU Track and Soccer

treadmills, bicycles, ellipticals, stairmasters, weight

Street 1001 W New York St
Zip 46202 Phone (317) 274-9749
Times
Ages any
Costs \$22 per month for track and soccer stadium

5 Arthritis Foundation

aquatic, walking programs

Street 615 N Alabama, Ste 430
Zip 46204 Phone (317) 879-0321
Times varies by program, call for times
Ages 18+
Costs varies by program, call for pricing

6 Invoke Yoga - Downtown

yoga and pilates classes, heated sessions,

Street 970 Fort Wayne Ave, Ste C
Zip 46202 Phone (317) 631-9542
Times Mon-Fri 4pm-8:15pm, Sat 7:45am-1:30pm, Sun
Ages 18+
Costs Community classes start at \$8 monthly and



Why CHICA-GIS?

- Places patients can visit to improve their health: dental, physical, & academic
- More patients will get the help/support they need, in their communities
- Helps physicians do an informed job of referring patients to services in their neighborhoods

What is our role in this project?



Role of informationists in CHICA-GIS (proposed)

- Monitor accuracy & literacy level of referral data & automatically generated documents
- Develop a knowledge management plan for CHICA-GIS
- Participate in community health information outreach services
- Dissemination

Role of informationists in CHICA-GIS Projects



- Accuracy of information
 - Tutoring resources
 - Current database very scant
 - No single good resource for central Indiana
 - Phoning all IMCPL branches
 - Google searches, follow up phone calls
 - Continue to add to database
- Doubled amount of tutoring resources available in database

Role of informationists in CHICA-GIS Project

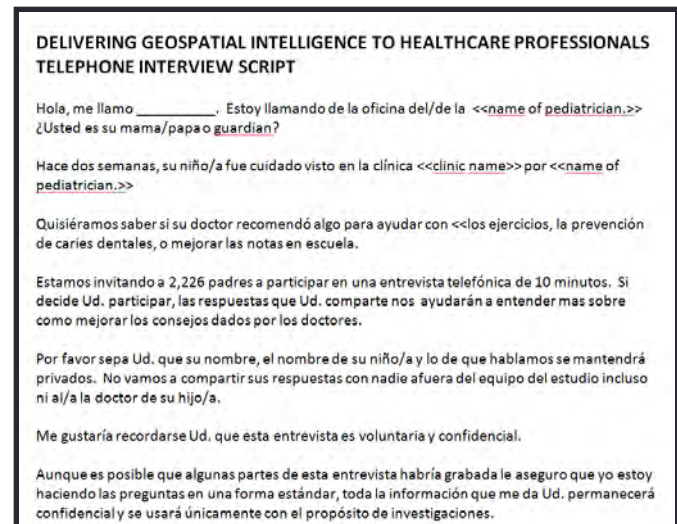
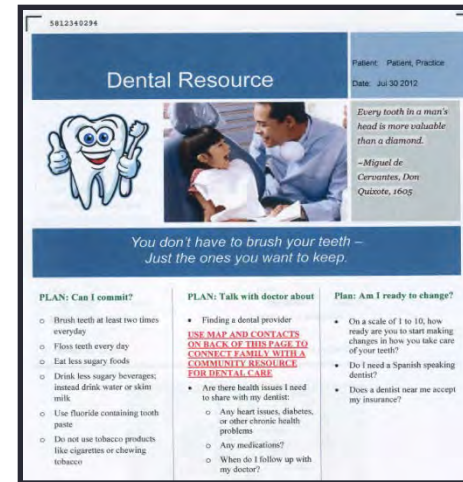
- Accuracy of information

- JITs

- Usability/overall design
- Shortened URLs/space allocation
- Consistency across all three types (exercise, dental, tutoring)

- Phone Survey

- Input on rating system for referral locations
- Additional questions to survey tool





Role of informationists in CHICA-GIS

- Knowledge Management

- Initial thought:

- capturing tacit knowledge of CHICA-GIS processes, associated documents

- Evolved into management of the knowledge that exists to make the CHICA system work

- The PIs wanted to discover links that might be missing in the system logic



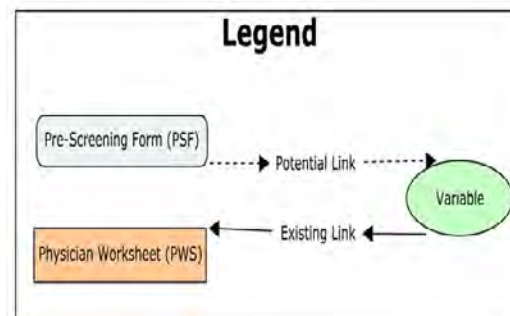
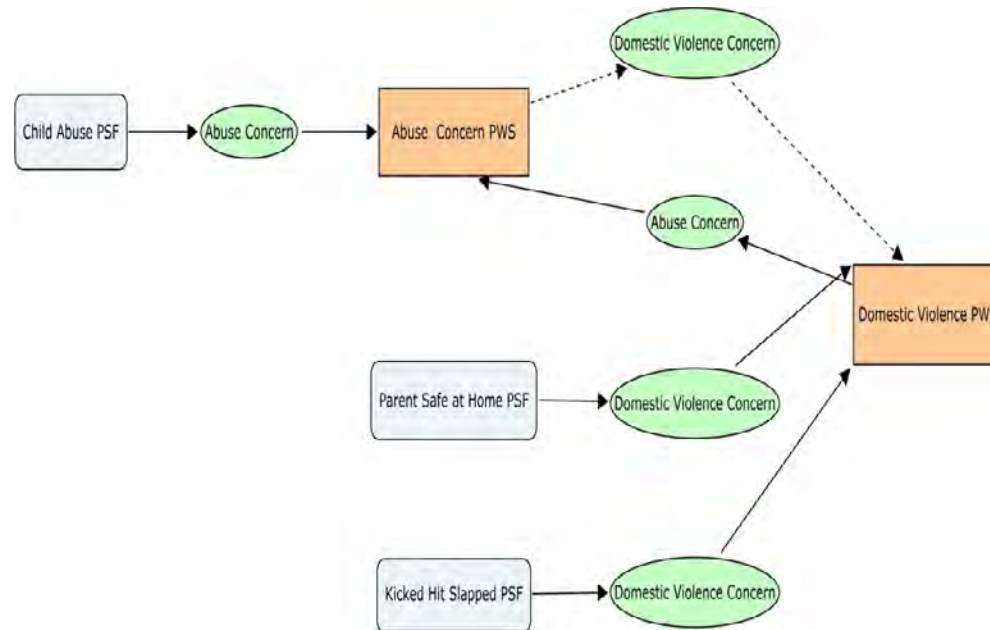
Role of informationists in CHICA-GIS

- Knowledge Management Plan
 - Currently no comprehensive map/catalog showing connections between rules
 - Ex. No current connection between parents smoking and child's asthma in the CHICA rules
 - Set of rules that govern decision support (Arden rules)
 - Rules added as needed
 - Mapping current rules for building future rules
 - Discovering new relationships in the CHICA system

Example of CHICA system logic

```
If (Box1=true) AND NOT (Box2=true) then
  CALL storeObs With "Abuse_Concern", "yes_md";
  CALL storeNote With "I am concerned about possible abuse.", "CHICA NOTES";
endif;
If (Box2=true) then
  CALL storeObs With "Abuse_Concern", "reported";
  CALL storeNote With "I have reported the family to CPS", "CHICA NOTES";
endif;
If (Box5=true) then
  CALL storeObs With "Abuse_Concern", "no";
  CALL storeNote With "I do not suspect abuse in this case.", "CHICA NOTES";
endif;
```

Map of System Logic



Knowledge Map of System Logic

Domestic Violence

Spouse Abuse

Child Abuse

Parent Safe at Home PSF

Kicked Hit Slapped PSF

Depression Screen Abused PSF

Child Abuse PSF

Domestic Violence Concern

Domestic Violence Concern

Domestic Violence Concern

Abuse Ever

Abuse Concern

Abuse Concern

Domestic Violence PWS

Abuse Concern PWS

Legend

Pre-Screening Form (PSF)

Potential Link

Variable

Physician Worksheet (PWS)

Existing Link



Role of informationists in CHICA-GIS

- Community Health Information Outreach Services
 - Develop a communication plan to share basics of CHICA-GIS with referral locations
 - Providing health information resources at referral locations
 - Identify barriers to the adoption of CHICA-GIS in the community

Lessons learned

Informationist value
Challenges

Value added by informationists

- Searching expertise
 - Increased tutoring locations in the database through more extensive searches
- Organization and display of information
 - Recommended changes to patient handouts from end user/usability perspective
- Knowledge mapping
 - Employed controlled vocabulary to CHICA in order to map system

Challenges/Obstacles

- Communicating our role
- Staying on track
- Steep learning curve with CHICA system
- Balancing w/other job requirements
- Evaluation
- New jobs

Questions?

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