eRA Support and Reporting of NIH Sponsored Research

Tuesday, September 9, 2003
Topics

- Co-investigator
- Key personnel
- Enterprise reporting of scientific spending
- E-Grants (eRA & Grants.gov)
Co-Investigator Tracking

Why do we need to track Co-Investigators?

- Change in science from single projects to teams across disciplines
- Need to be able to recognize the contributions of co-investigators* on team/multi-disciplinary projects by tenure committees, publishers, and funders of research

*Other specific definitions to clarify the contributions may be needed
Co-Investigator Tracking

What needs to be done to make these changes?

➡️ Does policy need to be changed?
➡️ Yes

- If authority is given to a co-investigator that is currently vested in the PI
- If the definition is changed from what currently is defined in policy:
  - An individual involved with the principal investigator in the scientific development or execution of a project. The co-investigator may be employed by, or be affiliated with, the applicant/grantee organization or another organization participating in the project under a consortium agreement. A co-investigator typically devotes a specified percentage of time to the project and is considered “key personnel.” The designation of a co-investigator, if applicable, does not affect the principal investigator’s roles and responsibilities as specified in this policy statement.

➡️ The database will need to allow this (and other) designation with percent effort and records
➡️ Include co-investigator listing on Notice of Grant Award
Key Personnel Specification

What do you want to accomplish?

- Recognize other scientists on a project
- Analyze key personnel at the time of grant submission and changes made over the life of the grant
- Conduct aggregate analysis of the scientific expertise across disciplines working across NIH
- Track changes in the research expertise and determine how that affects given research disciplines
- Gather information on salary and percent effort and conduct analysis on them across disciplines
- Provide better information for management of portfolios for NIH staff
- Reduce reporting complications involved with edits/changes to “key personnel” in system
**Key Personnel Specification**

What needs to be done to make these changes?

- Refine policy definition for “key personnel”:
  - “Individuals who contribute in a substantive way to the scientific development or execution of a project, whether or not they receive compensation from the grant supporting that project. The principal investigator and collaborators are included in this category.”

- Define “roles” for key personnel or adopt roles identified by Grants.gov (PD/PI, Co-PD/PI, Key Person, Post Doctoral Associate, Other Professional, Graduate Student, Undergraduate Student, Technician, Consultant, Other)

- Generate a list of key personnel roles in the system, add to data schema, and modify all current applications
Key Personnel / Co-Investigator

Approximately one year to implement changes

- Requirements Analysis: 3 months
- Architecture: 2 months
- Testing: 3 months
- Design & Development: 6 months
- Acceptance Testing: 2 months
- Deployment, Training, Support: 1 month
Key Personnel / Co-Investigator

Approximately one year to implement changes

Budget estimated at $1,000,000
(64 months of work hours at $100/hour)

- Requirements Analysis = 2 people x 3 months
- Architecture = 2 people x 2 months
- Testing = 2 people x 3 months
- Design & Development = 6 people x 6 months*
- Acceptance Testing = 2 people x 2 months
- Deployment, Training, Support = 3 people x 1 month

* Without adding full business processing, we can drop 4 developers from the Design & Development stage; this will reduce costs but not time.
Key Personnel / Co-Investigator

Why does it take a year and cost $1 million?

- The new Rational Unified Process (RUP) used by eRA for enterprise systems ensures a quality product.

- RUP requires analysis of:
  - 8 stove-piped IMPAC II modules
  - 4 J2EE modules
  - Common database reporting module
Enterprise Reporting of Scientific Spending

Is this possible?

What’s the problem?
Rapid Reporting of Scientific Spending

Current Status:

- >20 databases: Used to index (map) scientific projects
- Poor reporting: NIH-wide reports not available
- Overlapping: Different business processes solving similar business problems
- Inefficiency: Duplication of resources (human & machine)
- Load: Unnecessary load on eRA databases
- Lack of a common understanding: Scientific definitions to index (map) to dollars
Rapid Reporting of Scientific Spending

What do we need to do to make these changes?

Agree to a strategy that allows flexibility within the ICs and capitalizes on existing solutions and front-end technology.
Rapid Reporting of Scientific Spending
What do we need to do to make these changes? (cont.)

Strawman for discussion:

- Let ICs have their own front-end and definitions
- Redesign the eRA reporting repositories
- Establish a common data model to be used by all
- Capitalize on cost savings generated to encourage ICs to use one of the following:
  - Adaptation of the “STARS” system used by 10 ICs
  - eRA/nVision collaborations – QVR and CRISP headings
- Develop a meta-layer and map IC definitions to an enterprise role up view to be shared with all ICs and the OD

Establish, within the Office of the Director, a group that is responsible for defining the terms in the meta-layer and how they map to IC definitions
## Estimated Projected Budget for FY03

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<thead>
<tr>
<th>Category</th>
<th>Budget</th>
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<tbody>
<tr>
<td>Project Management</td>
<td>$4.2 million</td>
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<tr>
<td>Support &amp; Operations</td>
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<tr>
<td>Communications &amp; Outreach</td>
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<tr>
<td>Analysis, Design, &amp; Application Development</td>
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<td><strong>Total</strong></td>
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Impact on the Project

Additional requests will have significant impact on activities planned for 2003 and 2004.

Costs to implement would absorb 50% of the budget for analysis, design, and development of new software.
Current eRA FY2004 Priorities

- Grants.gov and CGAP integration
  - Expand pilot of electronic receipt of applications
  - Integrate workflow of electronic application in current business process applications, including Receipt and Referral, Peer Review, IC Operations and Grants Management

- HHS OPDIV coordination
  - Analysis and migration of all OPDIV legacy data into eRA database
  - Analysis and development of any changes needed for OPDIV use of eRA systems as the HHS Enterprise system for all research grants
  - Coordination of data-mart with CIT and ACF GATES system for unified reporting system of research and non-research funding across HHS
Current eRA FY2004 Priorities (cont.) …

- Continue ongoing three-year effort to convert all current and shared modules developed in legacy Oracle forms to Web-based J2EE-developed systems
- X-Train 2.0: Complete design and development for both internal NIH and external institutional use for training grant administration
- RFA/PA: Complete design and development for use by NIH and OPDIVs as creation and total workflow process
- Council Module: Analysis, design and development of workflow for grants to be used by Program and Budget to track, report and support business flows more efficiently
- Analysis and initial design of an electronic workflow process for entire lifecycle of a grant, including all e-notifications (email notifications to relevant actors of changes to grant status or process) and e-requests (external and internal requests made to NIH for changes in status or process on the grant)
- Additional details provided on slides 37-43 as background material
eRA Update
DHHS Consolidation of Grants Systems

- DHHS will begin to collapse from 11 to 2 systems in 2004:
  - eRA system (IMPAC II) chosen as the system for all research grants within DHHS
  - ACF chosen as the system for all other grants
- eRA CRISP on the Web will be the public reporting system for all DHHS grants
# What Are the Numbers so Far?

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<tr>
<th>Agency</th>
<th># of Users</th>
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<tr>
<td>AHCPR</td>
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<tr>
<td>CDC</td>
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<tr>
<td>FDA</td>
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<td>NSF</td>
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Impact on the eRA Project

- Each OPDIV is welcomed and treated as another IC
- In the past, a school tax system used on a per volume basis = to the NIH IC tap
  - This needs to be reexamined with regards to reporting systems, legacy data, data marts, UFMS tie in, requirements to add new features and other migration issues
- Each OPDIV is welcome to participate with representatives on the project team and each functional area
- DHHS likely to have a core team of architects and project managers working across the Department to help the migration
Competing Grant Application Process

- CGAP: NIH’s implementation of the electronic 398 and other NIH applications
  - Not specifically a part of NIH eRA Commons
- Grants.gov: Government-wide storefront for all grant applications
How: eRA Exchange

- Computer-to-computer information exchange; no front-end
  - In-coming applications and requests
  - Out-going messages and status updates
- XML as the technology for structured data
- PDF for text and graphics
Target Timetable

Phase 1: January 2003
- Standard XML documentation, technology and application receipt flow
- Inception, tech architecture and analysis

Phase 2: February—June 2003
- Application receipt and validation
- Build and test the receipt of XML data stream

Phase 3: July—August 2003
- Business-to-Government flow and interchange infrastructure
- Complete design and build business-to-government exchange
- Pilot

Phase 4: August—November 2003
- Integration with bi-directional communications on IPF, PPF, FSR and potentially other requests
- Build out the integrated system for e-Applications: test and gradual introduction
Coordination with Grants.gov

- Grants.gov hired development contractor (Northrop Grumman, AT&T, Ekagra)
- Monthly coordination meetings with Grants.gov and NIHD (Dr. McGowan, Jim Cain, Charlie Havekost)
- eRA staff participates in the Grants.gov team
NIH Electronic Grants Administration Components

Many Applications Released

- Unrestricted Interfaces

  - Commons Registration – Initial set-up for organizations
  - Accounts Administration – User account maintenance
  - Application/Award Status – Monitor grant applications & awards
  - Institutional & Professional Profiles (IPF & PPF) – Maintain repetitive
  - Information about institutions and investigators
  - Competitive Application(CGAP)- Competing Grant Application
  - Trainee Appointments (X-Train) – Trainee Appointment maintenance
  - Submission of non-competing progress reports (e-SNAP)
  - Financial Status Report (FSR)
  - Internet Assisted Review (IAR)
  - Interagency Edison (iEdison) – Invention Reporting
Current Status of NIH eRA Commons

Registration/User Information

More than 80,000 total log-ins
More than 500 organizations
More than 4,700 user accounts
More than 2,600 PIs
Hits Per Month

[Graph showing the number of hits per month from October 2002 to August 2003. The x-axis represents the months and the y-axis represents the number of hits. The graph shows a steady increase in hits from October 2002 to June 2003, with a sharp increase in July 2003 and August 2003.]
August Release Highlights

- **electronic Simplified Non-competing Application Process (eSNAP)**
  
  - Users can submit Population Tracking Inclusion Enrollment reports.
  - Users can enter a Signing Official (SO) as the Administrative Official (AO) on the face page of the eSNAP without having to create an AO role for the SO.
  - Users can indicate that an individual page has been completed; the status of the page will be shown on the Manage eSNAP screen.

- **eRA Commons.**

- A new tool is available for NIH validation of the historical data associated with an IAR/PI Commons account request.

- The PI can include additional NIH support to an account that is attached to another profile.

- **Grants Closeout Module (GCM)**

  - Module tuned for improved system performance.
  - Closeout specialist and central IC email address (where summary statements are sent) are copied on all emails. “Closeout” is included in the email subject to enable staff to create Outlook forwarding rules.
  - Users can search for an individual grant by serial number and mark it as pending or unfunded.
  - Council meeting date added to the Check Pending List.
  - Users can sort on any column of the Pending List, My Closeout, Show All, and FRC Report.
  - Three new data elements added: destroyed date, whether or not the Program Official received the final progress report, and whether the report is acceptable.
August Release Highlights (cont.)

 Grants Management (GM)

- Notices of Grant Awards include Budget and Project Period Start and End dates for Fellowships after activation.
- The wording of edit check result messages are modified per the recommendations of a user working group.
- Users can access the Subproject Maintenance Screen from GM.
- The document number for Type 9 grants is in the new format with the last character always equal to ‘A’. The business rule that validates the award document number is modified to validate this new format.
- IC Search Track Order Report (ICSTORe).
- Users can query for and display Loan Repayment Program (LRP) applications.
- Subprojects added to "Add Additional Grants" functionality.

 Institute and Center Operations (ICO).

- Users can “advance” the council date for an application from the October round to the preceding August or May round.
- Loan Repayment Program (LRP) applications are included in the GUM hit list.
- ICs can require population tracking of any application with a human subjects exemption of E4 by setting the tracking exception code to "00."
August Release Highlights (cont.)

- **Internet Assisted Review (IAR)**
  - IAR into production - all SRAs and GTAs with an IMPAC II account can use IAR.
  - A calendar on the Edit Dates screen enables the user to choose a date from the calendar instead of typing it in.
  - A meeting-wide option for including reviewer names in the preliminary summary statement body is available. Users can choose to include or omit reviewer names.
  - The grant application number is a hyperlink for viewing the grant image.
  - If users submit or delete a critique for an application and then click back to the list of applications, they will return to the same application instead of the top of the list.
  - Ability to zip all preliminary summary statements into one zip file.
  - Ability to view a critique on the Submit Successful screen.
  - The option to view all meeting critiques (in Adobe PDF format) sorted by PI name.

- **Peer Review**
  - Four reports available for output in MS Excel format: Assignments – Master Copy (landscape), Administrative Data, Composite Score, and Voter Matrix.
  - RFA/PA added to the IRG/SRG Reassignment hit list report.
  - SRA remarks added to the Assign Reviewers and IRG/SRG Reassignment screens.
  - Line 5 removed from addresses; the city, state, and zip code fields will be used to build the last line of the address.
**August Release Highlights (cont.)**

- **Population Tracking (Pop Tracking)**
  - Pop Tracking integrated with the eRA Commons eSNAP module.
  - Phase 3 Checklist available through the Application Program Interface (API).
- **Program Class Code (PCC) Application Program Interface (API)**
  - Wildcard capability in the PCC validation table to replace pattern-matching logic that was embedded in the business rules.
  - ICO's PCC Definition screen reminds users of the wildcard options (relevant help text screen also added).
  - PCC validation table values replaced with equivalent wildcard patterns.
- **Program Module (PGM)**
  - Portfolio pages separated for Pending Type 5's and Post Award/Active grants.
  - Ability to include/exclude grants not assigned to a PO for tracking/interest purposes.
  - Enhanced filtering of a portfolio list by FY, Council, PCC, and Subprojects.
  - Attention Flag column in each portfolio page shows concerns on a grant.
  - Ability to override the system-defined sort with user’s sort preference on each portfolio page.
  - Integrated with new shared eRA modules: eRA Program Checklists and eRA Web QT.
  - Ability to view historical PO notes on each grant in a PO's portfolio.
  - Signed/Unsigned column to indicate whether PO approval is complete.
  - New portfolio page for withdrawn grants.
  - Ability to expand/collapse sections of the eRA Grant Snapshot for printing.
August Release Highlights (cont.)

Receipt and Referral Maintenance
- Ability to select the column on which to sort on the View Application Status screen.
- Changes to correspond to degree and address restructuring.
- Corrected processing for setting Program Class Codes, for including Award Document Numbers, and for displaying review-meeting associations for reinstated applications.
- Modified mailer processing to suppress change mailers when only the group extension code has changed.

Subprojects
- Reconciled subproject API business rules with those enforced on the Subproject screen.
- Rollover occurs sooner when the subproject information is drawn from a noncompeting continuation award.
- Subproject "total cost" business rules revised to account for supplemental award amounts.
- Subproject API extended to allow upload of IC-assigned project terms.
- Consistency of human-subject coding enforced among subprojects and parent applications. A subproject cannot be flagged with human subjects if no human subject involvement is indicated on the parent award. Conversely, users receive a warning if the parent award indicates human subject involvement but none of the subprojects carries this indication.
- Consistency of animal subject coding enforced among subprojects and parent applications. A subproject cannot be indicated with animal subjects if no animal subject involvement is indicated on the parent award.
- Overnight CRISP rollover processing retired. Rollover driven by system events.
- Fixed bug that allowed users without ICO_GRANT_UPDATE_ROLE to maintain subprojects via the Subproject screen.
- Leaving the human-subject checkbox unchecked results in human subject code "10" (instead of NULL).
- Subproject screen allows population tracking subprojects to be marked "awarded" and "IC approved."
- Subproject screen invokes newer version of the Edit Check module, with results for entire set of subprojects presented in one consolidated display.
- Application Affiliation records created in the database to track the relationship between subprojects and their parent applications.
Priority Setting for eRA

- Wish list from everyone
- Vetted through functional groups: user groups, project team, EPMC, Project Team Retreat, Steering Committee
- Top 10–15 priorities long term
  - New – biggest impact
  - Migration out of legacy system
  - Required
  - Maintenance
- Details left to the Project Team for releases:
  - Group Advocate
    - Wish list to Project Team
    - Budget and architectural review
    - Feedback for what is possible
Thank you for your time and your comments
Additional Background Material
eRA Fall Release FY04 Highlights

These are enhancements & new development in addition to normal maintenance & mods to support new Password Policy

**CGAP Pilot**

- Test exchange of information and submission mechanism for small number of live e-applications from SBIRs and Grants.gov
  - Type 1 in Oct. against test/staging DB; Type 2 in Nov.
  - Institutions have DUNS and are registered in CCR and Grants.gov
  - Modular budgets, R01s, appendices mailed
- Fall functionality:
  - Receive the ticket or application
  - Retrieve applications
  - Load applications into database
  - Provide error messages at all stages
  - Process requests for status of the e-application
  - Transmit status info to requester
  - Reference implementation (sample code)
  - Tech doc. and guide on how to format msg.
  - Paperless business process in R&R

**CGAP Receipt & Referral**

- Develop First Contact Module including new screens: Receipt Workload Hitlist, First Contact Detail Screen, ARA Detail, and Duplicate Submission Detail
- New Breakout Module (currently Breakout is manual)
- Changes to existing C/S Screens to process e-applications and add new workflow
- R&R maintenance
eRA Fall Release FY04 Highlights

These are enhancements & new development in addition to normal maintenance & mods to support new Password Policy

GM
- Document current NGA system
- Minimum changes to NGA for OPDIVs
- On Admin screen display status of GM/PO checklists and provide access to checklists and sign-off comments
- Checklist items on GM worksheet
- Various maintenance fixes

eSNAP
- Option to change form if No Target in eSNAP Inclusion
- e-Notification for type 5 (push)
- eSNAP rollforward... Copy Performance Sites/Key Personnel to Next Grant Year on eSNAPS
- Remove data validation from SAVE so user can save incomplete data
- File upload for Other Support.

Web QT
- Respond to pilot user high priority requests
- Maintain Queries – save, add, edit, run, and delete queries
- Page level HELP
- Expand pilot

Committee Mgmt.
- High priority enhancements requested by J2EE CM Web pilot users
- Document specs to move from updating ROLEs to updating Profiles
eRA Fall Release FY04 Highlights

These are enhancements & new development in addition to normal maintenance & PW policy implem.

**Program**
- Program Approvals page
- Read access to any POs portfolio
- Add PCC as parameter on search page
- Restructure so users see default portfolio after clicking My Portfolio
- Default search criteria to perform PI searches w/o wildcards and default user’s IC; default override
- PCC sort on all portfolio pages
- Provide usage statistics
- Add additional sort options
- Add additional hitlist data to portfolios
- Change logic on specific portfolios
- Permit Program Assistants to login to PGM

**Peer Review**
- Add indicator to identify CGAP applications
- Change Percentile rules to allow one IC to update another's data
- General maintenance and bug fixes

**Internet Asst.Rev (IAR)**
- Improve performance on List of Applications screen
- Additional values for Active Account
- Implement IAR demo facility
- Fix to search and display on IAR entered fields (IAR email)
- Add Profile Name to Create Account
**eRA Fall Release FY04 Highlights**

These are enhancements & new development in addition to normal maintenance & PW policy implem.

### J2EE Grant Folder
- Replace client/server grant folder with J2ee grant folder in all client/server applications
- Add Reports section at bottom of J2EE Folder UI to serve as J2EE Reports menu
- Grant folder documents customizable by business area
- Reports section customizable by business area
- Add to Reports section: PI History, PI Brief, Grant Snapshot for all applications
- Add additional reports to Reports section as requested by business areas
- Add hyperlink to grant number to invoke new Grant Snapshot report

### iEdison
- Put hold on new functionality; verify requirements with current functionality; stabilize system functionally
- Modify Officer Upload Process
- Addition of locking for update in J2EE web client
- Verification of document handling functionality (timeouts) - web client
- Several maintenance fixes

### X-Train/TA/Payback
- Full requirements for X-Train and Training Activities
- Various fixes and maintenance
eRA Fall Release FY04 Highlights

These are enhancements & new development in addition to normal maintenance & PW policy implem.

GM Closeout

- Include specialist info on Institution report
- Allow user to set default IC
- Several modifications to logic and edits

Subprojects & CRISP+

- Modify subproject screen and CRISP+ to implement subproject policy in FY04 (all subprojects entered by ICs)
- Special Population Tracking Provisions
- Fix bugs and maintenance

J2EE Base System; Status

- No Cost Extensions
- Just-in-Time for IRB, IACUC, Other Support and Checklist
- CGAP Status in Status and verification by PI and SO of submitted application
- Don’t Show Award dollars if not Awarded
- Modify ‘Show NIH Support’ to filter out Training Grants for other institutions
- Consolidate Status/eSNAP into Status allowing launch of eSNAP from status
- Fix bugs; minor enhancements
eRA Fall Release FY04 Highlights
These are enhancements & new development in addition to normal maintenance & PW policy implem.

Security
- Implement eRA Password Policy in all eRA applications. Include: reset PW ability, expiration at 180 days, lockout after 5 unsuccessful attempts to login, etc.
- Changes in all applications to support above

FSR
- Special FSR submission rules for Foreign grants to allow annual submission of SNAP grants to foreign institutions
- Handling of new AWD_DOC_NUM format

Pop Tracking
- FY Definition for Final Year entry
- Roll Forward Restriction of Enrollment Comments

Person
- Document design and level of effort for enforcing policy in CM and TA that normal user updates profile only; the role becomes a subset of the profile

OPDIV Integration
- Various modifications to support OPDIV integration in IMPAC II

Documentation
- End-of-project documentation related to end of development contract