

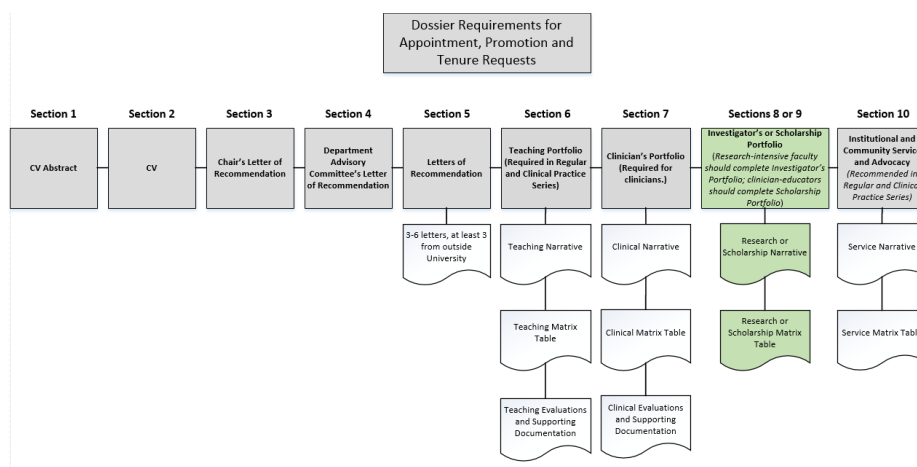
## SECTION 9 – BUILDING AN INVESTIGATOR’S PORTFOLIO

**If your career focuses on research, you must submit a well-organized “Investigator’s Portfolio” as part of your promotion or tenure dossier.** This is the section of your dossier where you explain and highlight your most noteworthy discoveries, insights or advances. This is also the place where you can explain your unique contributions to multi-disciplinary (“team”) research programs.

Note: Your Curriculum Vitae (C.V.), which lists your grants, publications and other scholarly activities, is not enough to judge research excellence. In your Investigator’s Portfolio you will include narrative summaries and annotated bibliographies, which explain the scope, importance and impact of your research and scholarly work to members of the SOM Faculty Promotions Committee. Examples are provided later in this section of the *Dossier Guide*.

Also note that the SOM Faculty Promotions Committee does not distinguish among different types of scientific research. Indeed, according to the Promotion Rules of the SOM, “basic, clinical, translational, educational and other forms of research are highly valued by the School of Medicine.” The SOM also recognizes the importance of “inter-disciplinary science and the need for collaboration among investigators.” See additional information below regarding “research independence.”

As outlined in the SOM Promotion Matrix, “excellence” in research may be demonstrated through peer-reviewed scientific publications, competitive grant funding, a national or international reputation, and evidence of originality, creativity and independence as an investigator. Naturally, when it comes to evaluating the quality of your scientific work, the information that you provide in this Investigator’s Portfolio will be supplemented by letters that are written by outside experts and peers in your field of study.



## INVESTIGATOR'S PORTFOLIO: SUGGESTED FORMAT

### 1. Narrative (Suggested limit of 3-6 pages)

The following format is suggested:

#### I. Research Focus

Explain the focus of your research, and highlight your most noteworthy discoveries, insights or advances. Also, explain how your work has supported the research programs and missions and enhanced the reputation of your department, the SOM or the University. You may include metrics (such as the *h*-index or total citation counts) to help faculty review committees assess the impact of your publications, but these are not a substitute for a clear description of the impact of your work. Remember that, overall, the Investigator's Portfolio seeks to provide information about the importance, impact and reach of your creative and scholarly work, in a manner that your C.V. cannot. Your narrative statement should not exceed 2 pages.

#### II. Summary of Funded Research

For your most important funded projects: List the grant and describe (briefly) the purpose of the project. Highlight your role, especially if you are not the Principal Investigator. Provide a brief summary of the nature and importance of the problem (the "context") and the expected results or implications of the work. You may want to provide separate descriptions of your efforts in writing the grants and in executing the grants. For multiple-P.I. grants and program project and center grants, be specific about how you contributed to the success of these grants. Limit this section to 250 words per project.

### **III. Annotated Bibliography**

Limit this section to a summary of no more than 10 of your “best” publications or scholarly works --- those that have been the most significant or that have received the most attention. Greatest weight is given to recent publications (typically, since your most recent promotion or tenure award). For each publication or scholarly work, provide a brief summary of the nature and importance of the problem (the “context”) and the most important results. Provide electronic links, but not reprints, for the publications described in this section.

You should also highlight the impact that your publications or scholarly work have had on your field. Metrics --- such as the number of article citations, your *h*-index or others (such as those available at ImpactStory.org) --- can be useful in making the case that the publication or scholarly work was significant. The Faculty Promotions Committee discourages the use of journal-based metrics (such as journal impact factors), since it is the quality and importance of the research contribution itself that is the key. Research importance can be measured by its impact on policy, practice or the scientific discipline. Other outputs from scientific research, such as intellectual property, databases, software or others, may also be highlighted.

### **IV. National Recognition**

Provide additional details about the degree to which your publications and discoveries have been recognized by leaders in your field. For example, highlight: invited lectures, visiting professorships and plenary research presentations; work cited in editorials, scientific blogs or the lay press; service on NIH study sections or scientific advisory boards; editorship of scientific journals (or membership on editorial boards); and accomplishments recognized by national prizes or scientific awards.

### **V. Evidence of Originality, Creativity and Independence.**

*This section of the Investigator’s Portfolio is particularly important for faculty candidates whose research is multi-disciplinary and whose publications and other accomplishments reflect the work of multi-disciplinary teams.*

Note: In 2012 the SOM promotion rules were amended, and the following definitions of “independence” were added: *The School of Medicine recognizes the importance of inter-disciplinary science and the need for collaboration among investigators. Therefore, as recommended by the National Academy of Science, the School of Medicine defines an “independent investigator” as one who demonstrates “independence of thought” --- that is, one who has defined a problem of interest, who has chosen or developed the*

*best strategies and approaches to address that problem and who has contributed distinct intellectual expertise.*

Use this section of the Investigator's Portfolio to clarify the contributions that you have made to multi-author publications and co-PI and co-investigator grants. Be specific about your intellectual contributions and the manner in which you defined the research objectives, led the research efforts, interpreted the results or shaped the overall research program. Additional evidence should also be provided, such as letters from the Principal Investigators or research group heads with whom you have collaborated, outlining in detail your specific contributions and the unique skills that you brought to the team. For multi-authored papers, letters from the first- or senior-authors may also provide evidence of your specific contributions. The overall objective is to convey clearly and concisely to the SOM Faculty Promotions Committee the importance, significance and broad impact of your cumulative research contributions.

## **VI. Institutional Service**

You should include descriptions of committee work and institutional service, if your efforts have been vital in supporting the general research missions of your department, the SOM or the University. Examples might include being a chair or member of an institutional review board or an institutional committee focusing on animal care, safety, conflicts-of-interest or scientific misconduct.

## **Research Matrix Table**

Every Investigator's Portfolio must also include a personalized Promotion Matrix Table. The Table will help you document "excellent" or "meritorious" performance in research, according to the SOM approved Promotion Criteria Matrix. The Matrix Table is a bulleted list of your research activities and accomplishments, presented and categorized according to the SOM's criteria. In other words, the completed Matrix Table helps you tie your activities and accomplishments in research to the specific examples of research excellence (or meritorious performance) that are included in the School's Promotion Matrices. The completed Matrix Table also helps reviewers understand and assess the range of your research activities and accomplishments.

The Matrix Table is only a list; reviewers will refer to your research narrative for information about the importance and impact of the activities listed in the Matrix Table.

## **Examples: Narrative Statement and Annotated Bibliography**

### **Example 1**

My research interests include: (1) Injury epidemiology and prevention; and (2) Clinical preventive services in emergency departments. As summarized in the grant and publications sections of my C.V., I have directed and published numerous original investigations in each of these areas.

For more than ten years, my research activities have centered around injury epidemiology and prevention, with a particular focus on injuries and fatalities related to traffic crashes and domestic violence. In particular, I have emphasized the use of rigorous data analysis and epidemiologic methods to inform public policy. Often, I have conducted studies that are of importance, not only to the academic community, but to legislators and to state and federal agencies. I have tried to focus on "consequential epidemiology" --- using research methods to help solve contemporary public problems.

Of the injury-related publications listed in my C.V., the following have received the most attention in Colorado and nationally:

1. *An Evaluation of the Colorado Mandatory Safety Belt Law: The First Year (Report to the Colorado General Assembly, October, 1989)*. This study used time-series analysis to show an effect of the new safety belt law, after adjusting for other laws, changes in speed, driver licensure, weather and economic conditions, and temporal trends. The law led to an increase in seat belt usage and had a measurable, but temporary, effect on injuries and fatalities.
2. *Facts vs. values: Why legislators vote "No" on injury control laws (J Trauma, 1993)*. This study was the first to examine decision-making by elected officials in the area of injury prevention. Legislators' knowledge, injury experiences, attitudes and beliefs were measured in a written survey and compared to their votes on Colorado's safety belt law. Knowledge of injury facts and data was not the key determinant of legislators' votes for or against a seat belt law. The strongest predictors of voting behavior were concern for personal freedoms, perceived constituent support and attention paid to policy effectiveness.
3. *Domestic violence against women: Incidence and prevalence in Emergency Department populations (JAMA, 1995)*. For years it had been asserted that one-third to one-half of women visiting Emergency Departments were there because of domestic violence. Prior chart reviews appeared to suffer from selection bias, non-uniform definitions of domestic violence, lack of blinding and confusion between acute violence and past exposures. This study was performed to provide accurate estimates of the incidence, one-year period prevalence and lifetime prevalence of domestic violence among women seeking care in Emergency Departments. Two ED's, a community ED and two walk-in clinics were studied. Our results, published in JAMA, have since been replicated by other investigators in academic and community hospitals.
4. *Detecting partner violence in the emergency department: The accuracy of three brief screening questions (JAMA, 1997)*. Intimate partner (domestic) violence is an important health risk for many women; as a result, routine screening has been recommended for women presenting for care in office and emergency department settings. However, no brief, accurate screening instrument had been developed or validated. This study tested a new three-question screen for partner violence among 491 women in two urban Emergency Departments. The screen was validated against two standardized measures of partner violence. The study found that three brief, directed questions accurately detected a large number of women with a history of partner violence.
5. *Motor vehicle fatalities: A comparison of Hispanic and non-Hispanic motorists in Colorado. Ann Emerg Med (In press)*. Traffic safety has emerged as a key public health priority in Hispanic communities. This study linked two population-based data bases (death certificates and the Fatality Analysis Reporting System) to compare fatally injured Hispanic and non-Hispanic motorists. Compared to non-Hispanic whites, Hispanic motorists had higher population-based traffic-related fatality rates. After adjustment for age, gender and rural locale, Hispanic drivers had significantly higher rates of safety belt non-use, alcohol intoxication, speeding and invalid licensure, and they had older vehicles. Prior to publication, there data were shared with Hispanic community leaders in Colorado.

## **Examples: Narrative Statement and Summary of Funded Research**

### **Example 1**

My research program focuses on improving care at the end of life.

I have been developing aging research at the University of Colorado Denver since beginning my research fellowship training in 1994. My research career trajectory demonstrates a commitment to: 1) initially developing my own skills as a researcher; 2) quickly assuming a role as a mentor for others who are interested in aging research; and 3) developing research, clinical and educational programs aimed at improving care for older persons with serious advanced illness. I have established a highly successful aging-focused research program that is addressing fundamental issues in the care of persons with advanced illness.

I have demonstrated a consistent track record of peer-reviewed research funding since 1996, including more than \$4 million in competitive research grants as Principal Investigator. These are listed on my C.V. and are described briefly below:

#### **The Population-Based Palliative Care Research Network (PoPCRN)**

The 2004 NIH “*State of the Science Conference Statement: Improving End-of-Life Care*” concluded that research networks are necessary to advance the palliative care evidence base. My principal contribution to the field is the development of the Population-based Palliative Care Research Network (PoPCRN).

PoPCRN is a national network of organizations providing palliative care that facilitates multi-site studies of hospice and palliative care, addressing operational as well as clinical issues. Building on the experience and model of primary care practice-based research networks, PoPCRN has demonstrated its effectiveness as a means of conducting high quality, clinically relevant end-of-life research in settings where palliative care is provided.

To date, the network’s research has focused primarily on symptom distress and quality of life, contributing significantly to the literature in these areas.

- To date, over 250 hospice and palliative care organizations from across the U.S. have expressed interest in participating in 27 PoPCRN-based studies.
- The multidisciplinary PoPCRN research team meets monthly to review research in progress and discuss development of new research ideas.
- Over the past 10 years of conducting PoPCRN-based studies, my research team and I have evolved novel experimental approaches to most effectively utilize the network. For complex studies, patient-focused data are often collected locally; alternatively, sufficient resources are budgeted to train and financially support on-site personnel and to conduct frequent site visits to assure adherence to study protocols. For less complex studies, PoPCRN has effectively employed web-based, email, telephone and mailed data collection approaches. A national Advisory Committee composed of representatives from participating sites, provides guidance regarding study topics, design, implementation, and data interpretation. A web page ([www.ucdhsc.edu/popcrn](http://www.ucdhsc.edu/popcrn)), email updates and a newsletter facilitate communication. Site-specific study results are disseminated to participating sites for use in internal quality improvement activities. Aggregate reports are distributed via the web site, newsletter, and the peer reviewed literature.

By including hospice/palliative care organizations that provide care through a variety of models and in diverse settings, PoPCRN is representative of a spectrum of end-of-life care. The collaboration between clinicians and administrators from the participating organizations and the PoPCRN research team ensures that the issues being studied are clinically relevant and that the studies themselves are rigorous. PoPCRN serves as a “laboratory” for addressing key issues in the care of persons with advanced illness and provides a rich resource for nurturing the development of research skills and careers.

*[Provide information about key publications and novel findings and discoveries]*

## **Examples: Summaries of Funded Research**

### **Example 1**

**Grant:** 5 U10HD41919-03 (Chase PI)

**Funding Agency:** National Institutes of Health

**Title:** Glucose Sensors in Children with Type 1 Diabetes

**Role:** Co-Principal Investigator

**Effort and Funding:** \$352,407 annual direct costs (\$1,926,831 total award); 21% effort.

**Dates:** 9/30/01 – 8/31/07

**Description:**

This grant funds a multicenter collaborative study group with the purpose of developing shared protocols aimed at independently assessing the accuracy and clinical usefulness of new continuous glucose monitoring devices, as well as to answer clinical questions about the cause and prevention of hypoglycemia in children with type 1 diabetes. My role in this grant included the participation in quarterly face-to-face meetings and bi-weekly steering committee conference calls to discuss protocol development and implementation as well as progress of ongoing clinical studies and manuscripts. I also volunteered for various specific protocol development committees as well as manuscript writing committees. As a co-investigator for the Barbara Davis Center, I was also responsible for overseeing patient enrollment and protocol implementation at our site. I was the lead author on two of the manuscripts generated by the Direcnet study group.

**Results and Key Publications:**

*[It is best to provide a brief “annotated bibliography,” which highlights presentations of data, important findings, novel insights, discoveries or other important contributions]*

### **Example 2**

Improving Patient Safety by Examining Pathology Errors

1 RO1 HS 13321-01

**Funding Agency:** Agency for Healthcare Research and Quality

**Dates:** \_\_\_\_\_

**Grant Amounts:** \_\_\_\_\_

I direct this multi-institutional project, which has involved the creation of a patient safety database, defining and characterizing laboratory medicine error, and designing and implementing quality improvement initiatives to decrease medical error. Our research team showed successful quality improvement implementation in many areas, including lung cancer diagnostic services, cervical cancer prevention services, breast cancer prevention services, thyroid gland fine needle aspiration services, laboratory standardization of diagnostic processes, and clinical office design of laboratory testing.

This funded grant has resulted in over 40 peer-reviewed publications, 41 abstracts and 125 invited lectures. A total of 12 institutions have participated in this study (originally only four were funded), and we identified and analyzed over 30,000 medical errors, 50% of which led to patient harm.